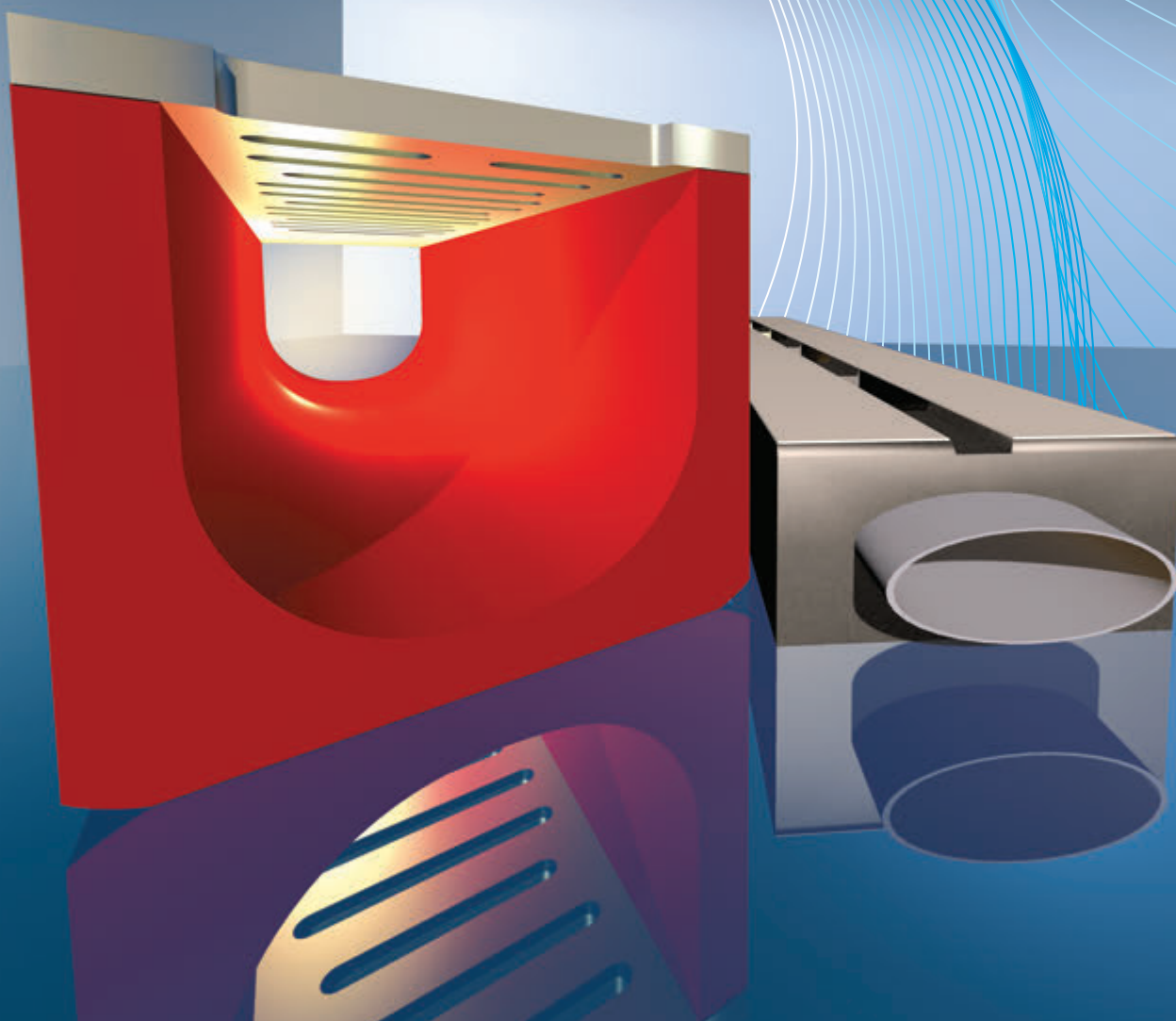




LINEAR AND POINT DRAINAGE SYSTEMS

Established 1982



MANUFACTURER



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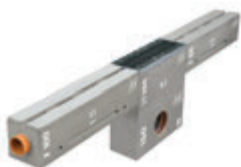
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AS PPH is a Polish manufacturer of linear and point drainage systems associated in the Polish Corporation of Sanitary, Heating, Gas and Air-Conditioning Technology seated in Warsaw.

COMPANY HISTORY

Founded in 1982, AS PPH was initially active in the field of construction engineering, i.e. design, construction and production of concrete elements. Since 1994 our business was focused on the production of AS linear and point drainage systems. 30 years of presence in the construction materials industry have earned us recognition in the Polish market.

Due to our proprietary technology and the use of domestic materials, AS drainage systems are entirely Polish products of very high quality.



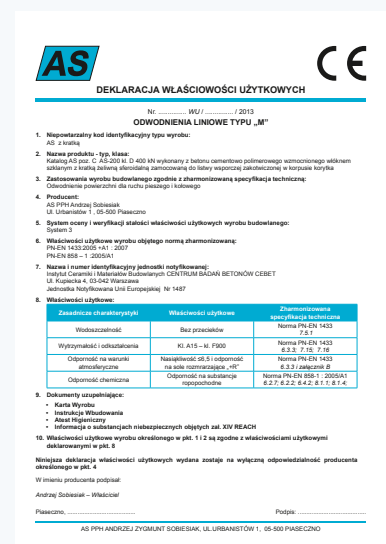
New manufacturing plant "AS" PPH - 15A Jeziora Nowina, 05-652 Pniewy

CERTIFICATES AND GUARANTEES

AS Linear Drainage Systems meet the requirements of the harmonized standard PN-EN 1433:2005 and PN-EN 858-1, confirmed by laboratory tests carried out by the Institute of Ceramics and Building Materials (CEBET) in Warsaw, the Road and Bridge Research Institute in Warsaw and the Building Research Institute in Warsaw. AS products are CE marked and hygienically approved by the National Institute of Hygiene (Approval No. HK/B/0786/01/2011). Each invoice is issued together with the Declaration of Performance. The highest quality is guaranteed by the ISO 9001:2008 Certificate and our received awards and certificates: Trustworthy Company 2015, EUROPRODUCT 2011, GOLDEN ASSEMBLER 2010, Fair Play Enterprise Award 2010, EURO CERTIFICATE 2010 and the nomination to the Polish Promotional Emblem "Poland: Now" Award.

Our company's development and modernity are proven with the opinion on our products innovation issued in 2013 by **Institute's of Construction Engineering at the Warsaw University of Technology.**

AS drainage systems are covered by a five-year warranty!!!



DESIGN AND SELECTION

High-qualified technicians and engineers, certified within the field of construction and installation, will offer you expert advice and consultation on design and implementation.

In case of any questions or concerns regarding our drainage systems, please contact our office.

PLACE OF EMBEDMENT ACCORDING TO PN-EN 1433

Class	kN load	Operating conditions
A	15	Areas intended for pedestrians and cyclists only.
B	125	Footways and pedestrian areas, car parks or parking areas for passenger cars.
C	250	Kerb sides: max. 0.5 into the road and 0.2 into the pavement.
D	400	Carriageways, parking areas for all types of road vehicles.
E	600	Areas subject to high pressure exerted by specialist vehicles and working machinery.
F	900	Areas subject to particularly high loads exerted by wheeled vehicle movement, e.g. aircraft runways

CALCULATION AND SELECTION OF DRAINAGE SYSTEMS

Calculation of the quantity of water to be drained

$$q = Q \cdot \varphi \quad [\text{dm}^3/\text{s}]$$

where:

$\varphi = 1/\sqrt[3]{F}$ is the retardation factor,

$F [\text{m}^2]$ - catchment area,

n - coefficient determined by the slope and catchment area,

$Q = F \cdot s \cdot q_{\text{max}} [\text{dm}^3/\text{s}]$ - design rain flow,

S - runoff coefficient,

$q_{\text{max}} = A \cdot t^{0.667} [\text{dm}^3/\text{ha} \cdot \text{s}]$ - design rainfall intensity,

A - mount determined by average

annual precipitation and probability of design rainfall,

$t [\text{min}]$ - duration of rainfall.

Channel flow calculation

$$Q = F \cdot C \cdot \sqrt{Rh \cdot I} \quad [\text{m}^3/\text{s}]$$

where:

$F [\text{m}^2]$ - channel cross-sectional area,

C - roughness coefficient,

$Rh = F/O [\text{m}]$ - hydraulic radius being the ratio of the channel cross-sectional area $F (\text{m}^2)$ and the wetted perimeter $O (\text{m})$,

$I = \Delta h/L [\%]$ hydraulic gradient being the ratio of the difference in the water surface level at the start and end point of the channel to its length.

Discharge efficiency

$$Q = \mu \cdot F \cdot \sqrt{2gh}$$

where:

μ - discharge coefficient,

$F [\text{m}^2]$ - cross-sectional area,

$g [9,81 \text{ m/s}^2]$ - acceleration of gravity,

$h [\text{m}]$ - the difference in water surface levels in the channel and the level of drain outlet.

The effective length of drainage can be calculated using the loss of pressure along the length.

DESIGN ENQUIRY

To choose the proper AS linear drainage system, you can fill out the „DESIGN QUESTIONNAIRE” form found under the DESIGNING tab on our website www.aspph.pl. If you have any questions or concerns, please contact our office or send us design projects and other data.

Length of the prospective drainage (m)	<input type="text"/>
Drainage area OR: catchment area (m)	<input type="text"/>
Length of drainage area (m)	<input type="text"/>
Width of drainage area (m)	<input type="text"/>
Ground slope parallel to the drainage long axis	<input type="text"/>
Ground slope perpendicular to the drainage long axis	<input type="text"/>
Number of outlets	<input type="text"/>
Type of surface	asphalt ▾
Traffic load	B-125 ▾
Grating material	cast iron ▾
Additional information	<input type="text"/>
Attachment	<input type="text"/>
Name*	<input type="text"/>
Surname*	<input type="text"/>
Name of the firm	<input type="text"/>
Address	<input type="text"/>
Phone number*	<input type="text"/>
FAX number	<input type="text"/>
E-mail address*	<input type="text"/>
	<input type="button" value="send"/>

REFERENCE LETTERS

STRABAG Sp. z o.o.
ul. Włocławek 111
85-100 Pisz

STRABAG
ul. Włocławek 111
85-100 Pisz

LIST REFERENCYJNY

Firma STRABAG Sp. z o.o. z siedzibą w firmie AS PPH - Producent urządzeń technicznych, dostarczył swoje usługi na drogę gminną Nr 02247 Skłębiszewo - Julianów w gminie Piszewo.

Kieruje robotami AS-100 z nadzorem budowlanym w klasie C-200 w kierunku kompleksu sportowo-rekreacyjnego.

Dotychczasowe materiały były dobre, jakości oraz zgodnie z wymaganiami Dotychczasowe wykonanie.

Pracownicy firmy AS PPH jako sprawni i gotowi do świadczenia usług, wykazali się w pełni zaangażowaniem i poświęceniem podczas prac (praca w trudnych warunkach).

STRABAG
ul. Włocławek 111
85-100 Pisz

STRABAG
ul. Włocławek 111
85-100 Pisz

SKANSKA

REFERENCJE

Wzrostek 2010-01-07

Firma SKANSKA S.A. informuje, że na kontrakt „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

Obecnie firma AS-100 wykonuje roboty ziemne i drogowe w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

Pracownicy firmy AS PPH jako sprawni i gotowi do świadczenia usług, wykazali się w pełni zaangażowaniem i poświęceniem podczas prac (praca w trudnych warunkach).

Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

TYNKBUD-1

Przebieg roboty „Tynkbuł 1” Sp. z o.o. informuje, że w 2009 r. na odcinku Włocławek II zostały wykonane roboty ziemne i drogowe przez AS PPH typu AS-A100 i AS-200 o łącznej długości 135km.

Obecnie firma AS-100 wykonuje roboty ziemne i drogowe w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

Pracownicy firmy AS PPH jako sprawni i gotowi do świadczenia usług, wykazali się w pełni zaangażowaniem i poświęceniem podczas prac (praca w trudnych warunkach).

Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

KORWAP

LIST REFERENCYJNY

Wzrostek 2010-01-07

AS PPH Andrzej Sobczak ul. Włocławek 1, 85-100 Pisz

Firma KORWAP S.A. informuje, że w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

Mostostal

LIST REFERENCYJNY

Wzrostek 2010-01-07

Mostostal Warszawa S.A. informuje, że w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

budimex UNIBUD

Lista Referencyjny

Wzrostek 2010-01-07

Firma budimex UNIBUD informuje, że w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

Dantex

LIST REFERENCYJNY

Firma DANTEX S.A. z siedzibą w Warszawie przy ulicy Płockiej 50/52 informuje, że w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

BOGL & KRYSZ POLSKA Sp. z o.o.
ul. Dąbrowska 17
01-030 Warszawa

LIST REFERENCYJNY

BOGL & KRYSZ POLSKA Sp. z o.o. z siedzibą w Warszawie, ul. Dąbrowska 17 ogłasza informację, że firma AS PPH A. SOBCHAK ul. Włocławek 1, 85-100 Pisz wykonała roboty ziemne i drogowe w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

UN CONSTRUCTION S.A.
ul. Włocławek 111
85-100 Pisz

LIST REFERENCYJNY

Firma UN CONSTRUCTION S.A. z siedzibą w Warszawie przy ulicy Włocławek 111 informuje, że w ramach kontraktu „Budowa drogi krajowej Nr 4 na odcinku Mielno - Łobez km 27+400 - 30+500 w ciągu 8 Półwysep - długość km 326+200 - 304+000 w długości 23399 m” przy ul. Łowickiej w Mielnie, zostały wykonane roboty ziemne i drogowe przez AS PPH. Pracownicy AS-100 w pełni zaangażowani.

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Z poważaniem
Marek S.A.
Dział Budownictwa Drogowo-Mostowego w Koszalinie

DRAINAGE WITH CAST IRON GRATING

CE marking – PN-EN 1433:2005

Declaration of performance

Hygienic Approval No. HK/B/0438/01/2016

Catalogue No. A–H

1. Intended use / place of use

Drainage of roads, streets, car parks, entrances, warehouse spaces, maneuvering yards, car washes, etc.

2. Material

Polymer-cement concrete reinforced with alkali resistant fiberglass (class C60/75), hot-dip galvanized hot-rolled steel, ductile iron.

3. Internal dimensions

100, 150, 200, 300, 400mm.

4. Strength class

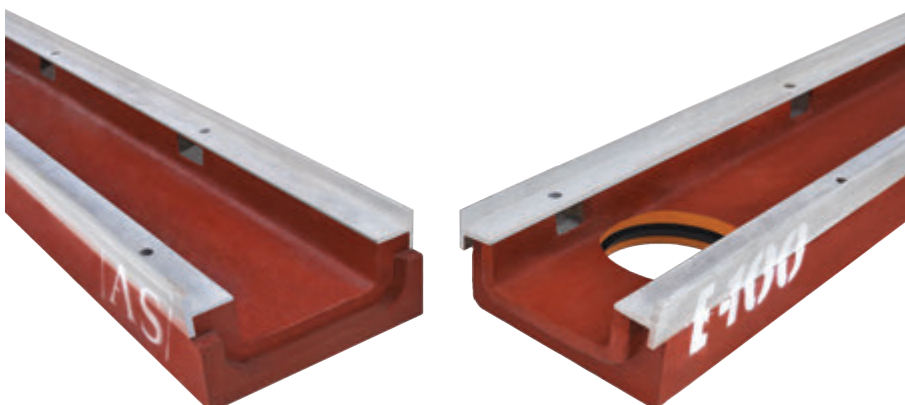
B125 kN, C250 kN, D400 kN, E600 kN, F900 kN.

5. Technological scope

- components with internal slope 0.6% and 3.2%,
- components without internal slope,
- cascade connection of components (in order to obtain slope),
- angular connection possible,
- drains with contamination traps, cover plates with stubs, blind cover plates,
- drain bodies with holes in the bottom or in side walls – used for water discharge,
- labeling and numbering enables combining the components into appropriate systems.

6. Advantages of using AS drainage systems with grating:

- drain bodies made from polymer-cement concrete with polymer additives of strength class C60/75,
- the application of alkali resistant fiberglass in concrete improves channel's flexure and impact strength,
- concrete resistance to long-term frost exposure and defrosting salts ("+R"), according to PN-EN 1433,
- concrete chemical resistance, including oil derivatives, according to PN-EN 858-1:2005,
- frames made of hot-dip galvanized hot-rolled steel extrusions, anchored inside the channel body, having much higher parametry strength parameters than cast iron slats and other slats made of, for example, thin cold-rolled sheet,
- grates made from ductile iron (class B125 kN to F 900 kN), screwed with stainless steel bolts of increased strength provided by: a grate locking device, elimination of clearance and stab faulting, which cause a lot of damage to drainage components in other fitting solutions.
- grates covered with paint coatings and processed with the KTL method, being one of the best methods on the market for protecting metal parts against corrosion,
- possibility to cover cast iron grates with hot-dip zinc coating, which permanently protects the grid against corrosion,
- „tongue and groove” jointing of drainage units, which enables a leak-proof connection with, for example, frost-proof and watertight mortars,
- holes for water drainage from bodies are fitted with PVC reducers with gaskets,
- availability of non-sloped, sloped and cascade systems, aimed at increasing the flow speed and extending linear drainage runs.



IMPLEMENTATIONS



Underground garages
AS-A100



City Stadium
Białystok
AS-300 drainage channels with cast iron covers



Expressway S8
Zawada
AS-200 - 900 LM



Motorway A2
Buk
AS-150



Main Road No. 2
Mińsk Mazowiecki
AS-ST200 - 120 pcs.

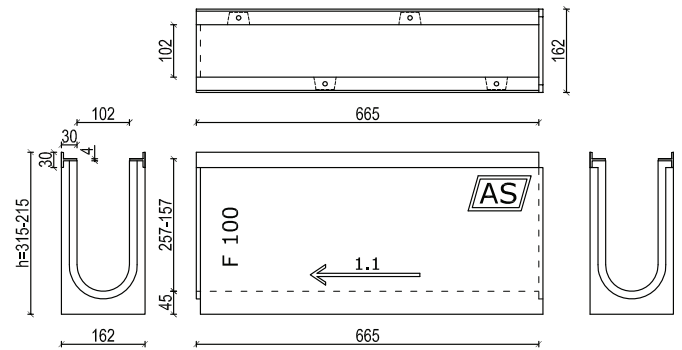


Municipal Landfill Site
Barycz
AS-300 - over 700lm

ITEM A

CHANNELS WITH INTERNAL WIDTH OF 100mm

AS-100



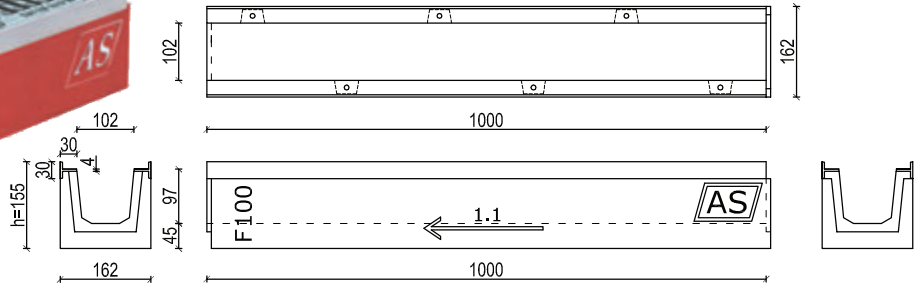
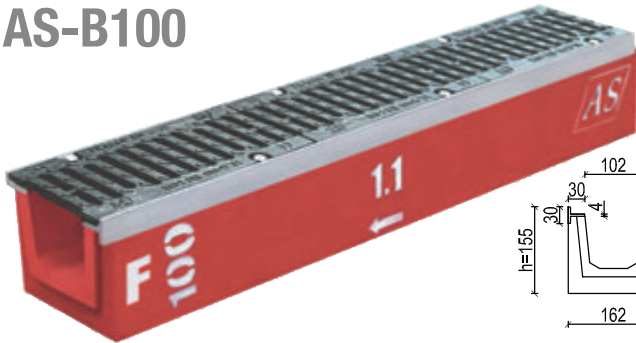
A.I.	Item number	CHANNELS AS-100	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
A.I.1.	1-25	with 0.6% drop	162	315-215	665	251-149	434	39.9-30.8	
A.I.2.	1.1	without slope	162	315	665	251	434	39.9	
A.I.3.	5.1	without slope	162	295	665	231	434	38.3	
A.I.4.	10.1	without slope	162	275	665	210	434	37.3	
A.I.5.	15.1	without slope	162	255	665	190	434	35.3	
A.I.6.	20.1	without slope	162	235	665	169	434	32.4	
A.I.7.	25.1	without slope	162	215	665	149	434	30.8	
A.I.8.	25.1A	connecting No. 25.1 with AS-B100	162	215	665	149	434	31.5	
A.I.9.	0.1.1	upper drain unit	162	315	665	251 / 475*	434	32.7	
A.I.10.	0.5.1	upper drain unit	162	295	665	231 / 475*	434	31.1	
A.I.11.	0.10.1	upper drain unit	162	275	665	210 / 475*	434	30.1	
A.I.12.	0.15.1	upper drain unit	162	255	665	190 / 475*	434	28.1	cl.B 125 - 3.0 kg
A.I.13.	0.20.1	upper drain unit	162	235	665	169 / 475*	434	25.2	cl.C 250 - 3.4 kg
A.I.14.	0.25.1	upper drain unit	162	215	665	149 / 475*	434	23.6	cl.D 400 - 4.4 kg
A.I.15.	-	cover plate with outlet No. 1.1	162	315	-	-	-	2.8	cl.E 600 - 4.8 kg
A.I.16.	-	cover plate with outlet No. 5.1	162	295	-	-	-	2.4	cl.F 900 - 6.2 kg
A.I.17.	-	cover plate with outlet No. 10.1	162	275	-	-	-	2.0	
A.I.18.	-	cover plate with outlet No. 15.1	162	255	-	-	-	1.6	
A.I.19.	-	cover plate with outlet No. 20.1	162	235	-	-	-	1.2	
A.I.20.	-	cover plate with outlet No. 25.1	162	215	-	-	-	0.8	
A.I.21.	-	blind cover plate No. 1.1	162	315	-	-	-	4.0	
A.I.22.	-	blind cover plate No. 5.1	162	295	-	-	-	3.6	
A.I.23.	-	blind cover plate No. 10.1	162	275	-	-	-	3.2	
A.I.24.	-	blind cover plate No. 15.1	162	255	-	-	-	2.8	
A.I.25.	-	blind cover plate No. 20.1	162	235	-	-	-	2.4	
A.I.26.	-	blind cover plate No. 25.1	162	215	-	-	-	2.0	

* drain inlet surface

ITEM A

CHANNELS WITH INTERNAL WIDTH OF 100mm

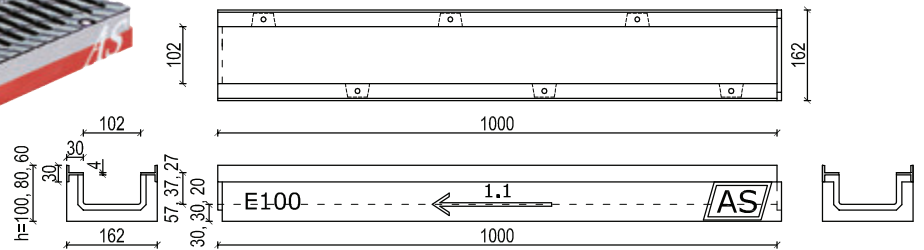
AS-B100



A.II.	Item number	CHANNELS AS-B100	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
A.II.1.	1.1	without slope	162	155	1000	88	434	37.1	cl.B 125 - 4.3 kg
A.II.2.	1.1A	connecting No. 1.1 with AS-A100	162	155	1000	88	434	37.8	cl.C 250 - 4.9 kg
A.II.3.	0.1.1	upper drain unit	162	155	1000	88 / 475*	434	31.4	cl.D 400 - 6.6 kg
A.II.4.	-	cover plate with outlet No. 1.1	162	155	-	-	-	0.4	cl.E 600 - 7.1 kg
A.II.5.	-	blind cover plate No. 1.1	162	155	-	-	-	1.5	cl.F 900 - 9.3 kg

* drain inlet surface

AS-A100



A.III.	Item number	CHANNELS AS-A100	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
A.III.1.	1.1	without slope	162	100	1000	58	434	22.2	
A.III.2.	1.1	without slope	162	80	1000	38	434	19.3	
A.III.3.	1.1	without slope	162	60	1000	27	434	15.1	
A.III.4.	0.1.1	upper drain unit	162	100	1000	27 / 475*	434	19.5	
A.III.5.	0.1.1	upper drain unit	162	80	1000	38 / 475*	434	16.6	cl.B 125 - 4.3 kg
A.III.6.	0.1.1	upper drain unit	162	60	1000	58 / 475*	434	12.4	cl.C 250 - 4.9 kg
A.III.7.	-	cover plate with outlet No. 1.1	162	100	-	-	-	1.0	cl.D 400 - 6.6 kg
A.III.8.	-	cover plate with outlet No. 1.1	162	80	-	-	-	0.8	cl.E 600 - 7.1 kg
A.III.9.	-	cover plate with outlet No. 1.1	162	60	-	-	-	0.6	
A.III.10.	-	blind cover plate No. 1.1	162	100	-	-	-	1.2	
A.III.11.	-	blind cover plate No. 1.1	162	80	-	-	-	1.0	
A.III.12.	-	blind cover plate No. 1.1	162	60	-	-	-	0.8	

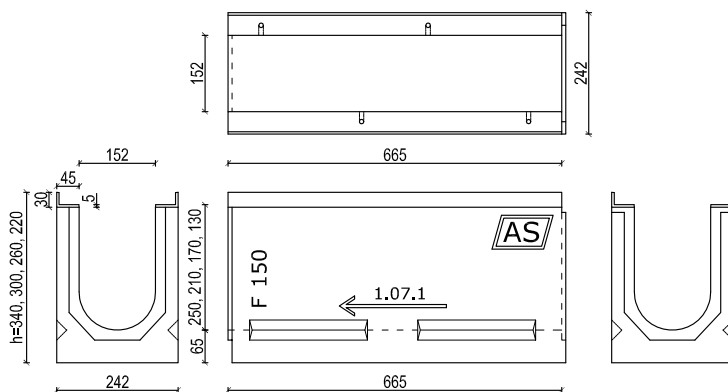
* drain inlet surface

A.V.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
A.V.1.	A	pass-through without outlet	162	320	680	38.4
A.V.2.	A	pass-through with side outlet	162	320	680	37.3
A.V.3.	A	pass-through with front outlet	162	320	680	37.0
A.V.4.	B	with bottom; without outlet	162	330	680	49.9
A.V.5.	B	with bottom; with side outlet	162	330	680	48.8
A.V.6.	B	with bottom; with front outlet	162	330	680	48.5
A.V.7.	-	contamination trap	80	250	400	3.0

ITEM B

CHANNELS WITH INTERNAL WIDTH OF 150mm

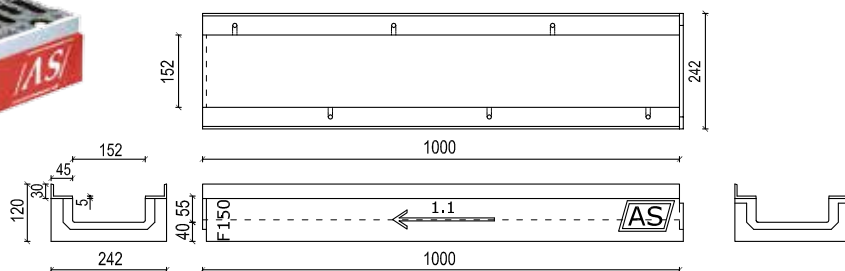
AS-150



B.I.	Item number	CHANNELS AS-150	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
B.I.1.	1.07.1	without slope	242	340	665	355	725	66.7	
B.I.2.	1.1	without slope	242	300	665	294	725	62.8	
B.I.3.	10.1	without slope	242	260	665	234	725	55.5	
B.I.4.	2.1	without slope	242	220	665	173	725	49.3	
B.I.5.	1.07.1A	connecting No. 1.07.1 with No. 1.1	242	340	665	355	725	67.0	
B.I.6.	1.1A	connecting No. 1.1 with No. 10.1	242	300	665	294	725	63.1	
B.I.7.	10.1A	connecting No. 10.1 with No. 2.1	242	260	665	234	725	55.8	
B.I.8.	0.1.07.1	upper drain unit	242	340	665	355 / 713*	725	50.5	
B.I.9.	0.1.1	upper drain unit	242	300	665	294 / 713*	725	46.6	cl.C 250 - 8.0 kg
B.I.10.	0.10.1	upper drain unit	242	260	665	234 / 713*	725	39.3	cl.D 400 - 9.4 kg
B.I.11.	0.2.1	upper drain unit	242	220	665	173 / 713*	725	33.1	cl.E 600 - 10.2 kg
B.I.12.	-	cover plate with outlet No. 1.07.1	242	340	-	-	-	5.2	cl.F 900 - 12.6 kg
B.I.13.	-	cover plate with outlet No. 1.1	242	300	-	-	-	4.8	
B.I.14.	-	cover plate with outlet No. 10.1	242	260	-	-	-	4.4	
B.I.15.	-	cover plate with outlet No. 2.1	242	220	-	-	-	4.0	
B.I.16.	-	blind cover plate No. 1.07.1	242	340	-	-	-	7.2	
B.I.17.	-	blind cover plate No. 1.1	242	300	-	-	-	6.8	
B.I.18.	-	blind cover plate No. 10.1	242	260	-	-	-	6.4	
B.I.19.	-	blind cover plate No. 2.1	242	220	-	-	-	6.0	

* drain inlet surface

AS-A150



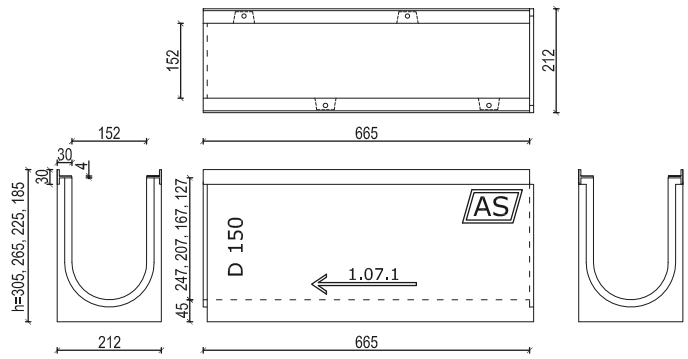
B.II.	Item number	CHANNELS AS-A150	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
B.II.1.	1.1	without slope	242	120	1000	84	725	40.0	cl.C 250 - 12.0 kg
B.II.2.	0.1.1	upper drain unit	242	120	1000	84 / 713*	725	32.0	cl.D 400 - 14.1 kg
B.II.3.	-	cover plate with outlet No. 1.1	242	120	-	-	-	1.8	cl.E 600 - 15.3 kg
B.II.4.	-	blind cover plate No. 1.1	242	120	-	-	-	2.2	cl.F 900 - 18.9 kg

* drain inlet surface

ITEM BT

CHANNELS WITH INTERNAL WIDTH OF 150mm

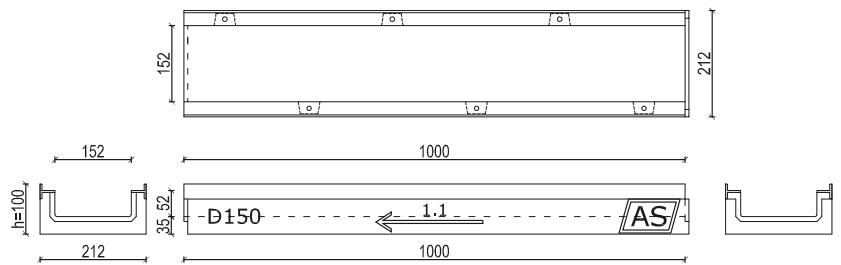
AS-150T



BT.I.	Item number	CHANNELS AS-150T	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
BT.I.1.	1.07.1	without slope	212	305	665	351	645	45.5	
BT.I.2.	1.1	without slope	212	265	665	290	645	40.5	
BT.I.3.	10.1	without slope	212	225	665	229	645	35.5	
BT.I.4.	2.1	without slope	212	185	665	168	645	30.5	
BT.I.5.	1.07.1A	connecting No. 1.07.1 with No. 1.1	212	305	665	351	645	47.0	
BT.I.6.	1.1A	connecting No. 1.1 with No. 10.1	212	265	665	290	645	42.0	
BT.I.7.	10.1A	connecting No. 10.1 with No. 2.1	212	225	665	229	645	37.0	
BT.I.8.	0.1.07.1	upper drain unit	212	305	665	351 / 713*	645	35.0	
BT.I.9.	0.1.1	upper drain unit	212	265	665	290 / 713*	645	31.0	cl.C 250 - 5.4 kg
BT.I.10.	0.10.1	upper drain unit	212	225	665	229 / 713*	645	27.0	cl.D 400 - 7.0 kg
BT.I.11.	0.2.1	upper drain unit	212	185	665	168 / 713*	645	23.0	
BT.I.12.	-	cover plate with outlet No. 1.07.1	212	305	-	-	-	4.1	
BT.I.13.	-	cover plate with outlet No. 1.1	212	265	-	-	-	3.5	
BT.I.14.	-	cover plate with outlet No. 10.1	212	225	-	-	-	2.9	
BT.I.15.	-	cover plate with outlet No. 2.1	212	185	-	-	-	2.3	
BT.I.16.	-	blind cover plate No. 1.07.1	212	305	-	-	-	5.0	
BT.I.17.	-	blind cover plate No. 1.1	212	265	-	-	-	4.4	
BT.I.18.	-	blind cover plate No. 10.1	212	225	-	-	-	3.8	
BT.I.19.	-	blind cover plate No. 2.1	212	185	-	-	-	3.2	

* drain inlet surface

AS-A150T



BT.II.	Item number	CHANNELS AS-A150T	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
BT.II.1.	1.1	without slope	212	100	1000	79	645	27.8	
BT.II.2.	0.1.1	upper drain unit	212	100	1000	79 / 713*	645	20.5	cl.C 250 - 8.1 kg
BT.II.3.	-	cover plate with outlet No. 1.1	212	100	-	-	-	1.5	cl.D 400 - 10.6 kg
BT.II.4.	-	blind cover plate No. 1.1	212	100	-	-	-	2.0	

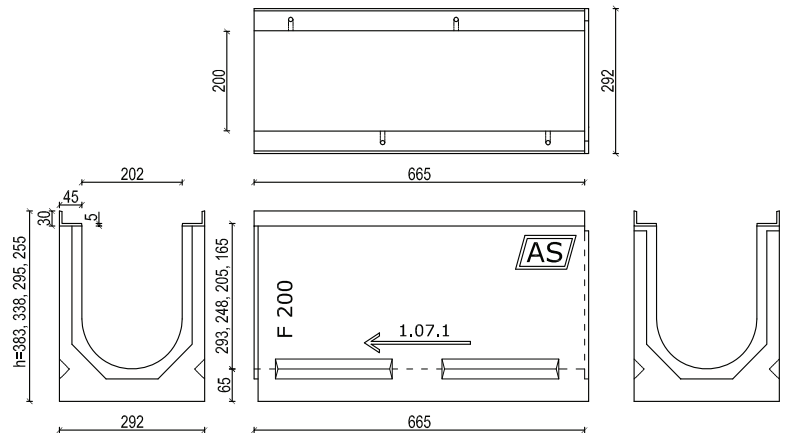
* drain inlet surface

B.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
B.III.1.	A	pass-through without outlet	242	320	680	53.7
B.III.2.	A	pass-through with side outlet	242	320	680	52.2
B.III.3.	A	pass-through with front outlet	242	320	680	52.2
B.III.4.	B	with bottom; without outlet	242	330	680	66.4
B.III.5.	B	with bottom; with side outlet	242	330	680	64.9
B.III.6.	B	with bottom; with front outlet	242	330	680	64.9
B.III.7.	-	contamination trap	130	250	400	3.5

ITEM C

CHANNELS WITH INTERNAL WIDTH OF 200mm

AS-200



C.I.	Item number	CHANNELS AS-200	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
C.I.1.	1.07.1	without slope	292	383	665	548	883	76.5	
C.I.2.	1.1	without slope	292	338	665	457	883	73.5	
C.I.3.	10.1	without slope	292	295	665	370	883	69.5	
C.I.4.	2.1	without slope	292	255	665	290	883	61.8	
C.I.5.	1.07.1A	connecting No. 1.07.1 with No. 1.1	292	383	665	548	883	76.9	
C.I.6.	1.1A	connecting No. 1.1 with No. 10.1	292	338	665	457	883	74.3	
C.I.7.	10.1A	connecting No. 10.1 with No. 2.1	292	295	665	370	883	69.9	
C.I.8.	0.1.07.1	upper drain unit	292	383	665	548 / 950*	883	54.6	cl.C 250 - 10.4 kg
C.I.9.	0.1.1	upper drain unit	292	338	665	457 / 950*	883	52.0	cl.D 400 - 11.6 kg
C.I.10.	0.10.1	upper drain unit	292	295	665	370 / 950*	883	47.6	cl.E 600 - 15.2 kg
C.I.11.	0.2.1	upper drain unit	292	255	665	290 / 950*	883	39.9	cl.F 900 - 17.6 kg
C.I.12.	-	cover plate with outlet No. 1.07.1	292	383	-	-	-	10.0	
C.I.13.	-	cover plate with outlet No. 1.1	292	338	-	-	-	8.1	
C.I.14.	-	cover plate with outlet No. 10.1	292	295	-	-	-	6.3	
C.I.15.	-	cover plate with outlet No. 2.1	292	255	-	-	-	4.5	
C.I.16.	-	blind cover plate No. 1.07.1	292	383	-	-	-	8.7	
C.I.17.	-	blind cover plate No. 1.1	292	338	-	-	-	7.7	
C.I.18.	-	blind cover plate No. 10.1	292	295	-	-	-	6.8	
C.I.19.	-	blind cover plate No. 2.1	292	255	-	-	-	5.9	

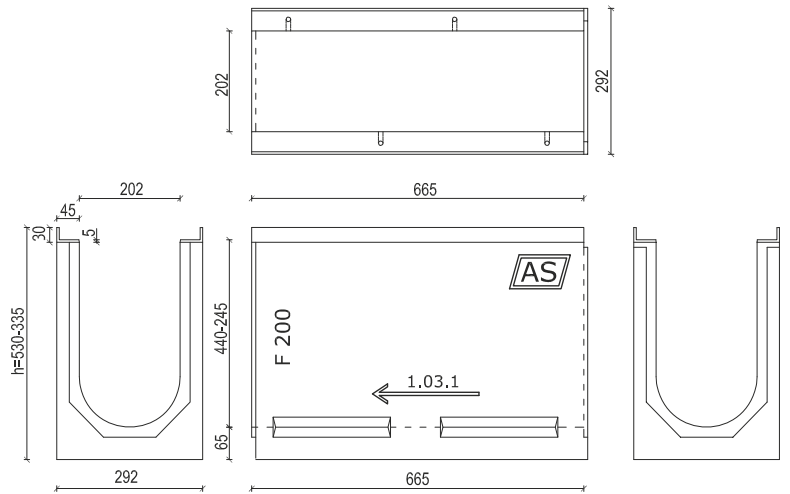
* drain inlet surface

C.IV.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
C.IV.1.	A	pass-through without outlet	292	320	680	61.9
C.IV.2.	A	pass-through with side outlet	292	320	680	60.4
C.IV.3.	A	pass-through with front outlet	292	320	680	60.4
C.IV.4.	B	with bottom; without outlet	292	330	680	77.6
C.IV.5.	B	with bottom; with side outlet	292	330	680	76.1
C.IV.6.	B	with bottom; with front outlet	292	330	680	76.1
C.IV.7.	-	contamination trap	180	250	400	3.8

ITEM C

CHANNELS WITH INTERNAL WIDTH OF 200mm

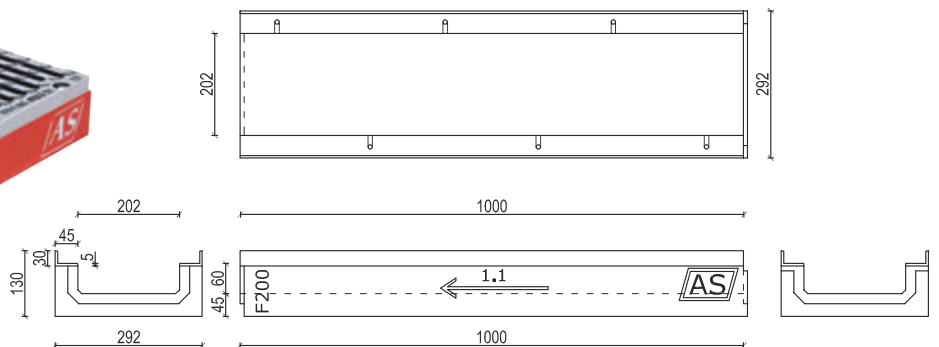
AS-200 with slope



C.II.	Item number	CHANNELS AS-200 with slope	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
C.II.1.	1.00-1.09	channel with 3.2% slope	292	530-335	665	845 - 457	883	99.3-76.5	
C.II.2.	1.01.1	channel without slope	292	508	665	801	883	94.1	
C.II.3.	1.03.1	channel without slope	292	465	665	714	883	90.2	
C.II.4.	1.05.1	channel without slope	292	424	665	631	883	86.1	
C.II.5.	0.1.00	upper drain unit	292	530	665	845 / 950*	883	92.3	
C.II.6.	0.1.01.1	upper drain unit	292	508	665	801 / 950*	883	72.2	
C.II.7.	0.1.03.1	upper drain unit	292	465	665	714 / 950*	883	68.3	cl.C 250 - 10.4 kg
C.II.8.	0.1.05.1	upper drain unit	292	424	665	630 / 950*	883	64.4	cl.D 400 - 11.6 kg
C.II.9.	-	cover plate with outlet No. 1.00	292	530	-	-	-	10.8	cl.E 600 - 15.2 kg
C.II.10.	-	cover plate with outlet No. 1.01.1	292	508	-	-	-	10.5	cl.F 900 - 17.6 kg
C.II.11.	-	cover plate with outlet No. 1.03.1	292	465	-	-	-	10.3	
C.II.12.	-	cover plate with outlet No. 1.05.1	292	424	-	-	-	10.0	
C.II.13.	-	blind cover plate No. 1.00	292	530	-	-	-	13.3	
C.II.14.	-	blind cover plate No. 1.01.1	292	508	-	-	-	13.0	
C.II.15.	-	blind cover plate No. 1.03.1	292	465	-	-	-	12.7	
C.II.16.	-	blind cover plate No. 1.05.1	292	424	-	-	-	12.4	
C.II.17.	-	blind cover plate No. 1.09	292	335	-	-	-	10.0	

* drain inlet surface

AS-A200



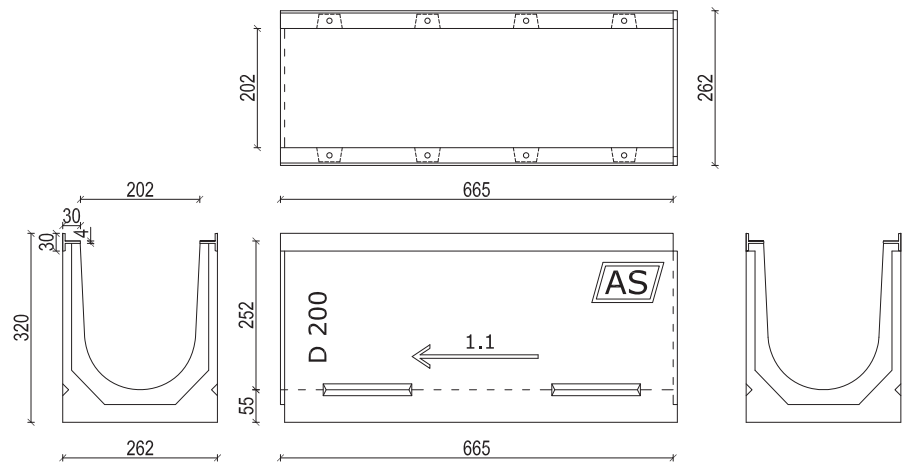
C.III.	Item number	CHANNELS AS-A200	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
C.III.1.	1.1	without slope	292	130	1000	121	883	50.4	cl.C 250 - 15.6 kg
C.III.2.	0.1.1	upper drain unit	292	130	1000	121 / 950*	883	35.0	cl.D 400 - 17.4 kg
C.III.3.	-	cover plate with outlet No. 1.1	292	130	-	-	-	3.0	cl.E 600 - 22.8 kg
C.III.4.	-	blind cover plate No. 1.1	292	130	-	-	-	3.3	cl.F 900 - 26.4 kg

* drain inlet surface

ITEM CT

CHANNELS WITH INTERNAL WIDTH OF 200mm

AS-200T



CT.II.	Item number	CHANNELS AS-200T	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mb]	Weight [kg]	Cast iron grates
CT.II.1.	1.1	without slope	262	320	665	448	879	57.0	
CT.II.2.	0.1.1	upper drain unit	262	320	665	448 / 950*	879	37.0	kl.C 250 - 8.0 kg
CT.II.3.	-	cover plate with outlet No. 1.1	262	320	-	-	-	7.6	kl.D 400 - 10.0 kg
CT.II.4.	-	blind cover plate No. 1.1	262	320	-	-	-	8.0	

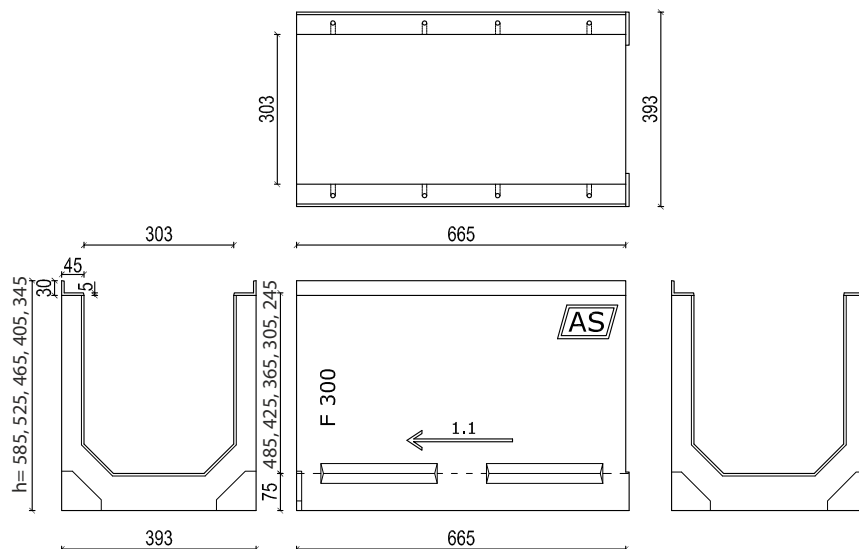
* drain inlet surface

C.IV.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
C.IV.1.	A	pass-through without outlet	292	320	680	61.9
C.IV.2.	A	pass-through with side outlet	292	320	680	60.4
C.IV.3.	A	pass-through with front outlet	292	320	680	60.4
C.IV.4.	B	with bottom; without outlet	292	330	680	77.6
C.IV.5.	B	with bottom; with side outlet	292	330	680	76.1
C.IV.6.	B	with bottom; with front outlet	292	330	680	76.1
C.IV.7.	-	contamination trap	180	250	400	3.8

ITEM D

CHANNELS WITH INTERNAL WIDTH OF 300mm

AS-300



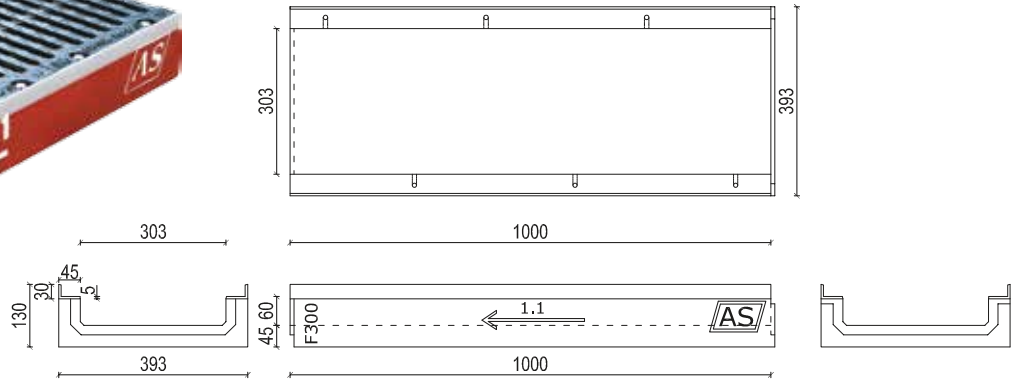
D.I.	Item number	CHANNELS AS-300	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
D.I.0.	1.01.1	without slope	393	645	665	1616	1352	145.0	
D.I.1.	1.03.1	without slope	393	585	665	1434	1352	130.0	
D.I.2.	1.07.1	without slope	393	525	665	1252	1352	120.0	
D.I.3.	1.1	without slope	393	465	665	1070	1352	111.0	
D.I.4.	10.1	without slope	393	405	665	888	1352	100.0	
D.I.5.	2.1	without slope	393	345	665	706	1352	91.0	
D.I.6.	0.1.01.1	upper drain unit	393	645	665	1616	1352	112.0	
D.I.7.	0.1.03.1	upper drain unit	393	585	665	1434 / 1425*	1352	97.0	
D.I.8.	0.1.07.1	upper drain unit	393	525	665	1252 / 1425*	1352	87.0	cl.C 250 - 18.6 kg
D.I.9.	0.1.1	upper drain unit	393	465	665	1070 / 1425*	1352	81.0	cl.D 400 - 22.6 kg
D.I.10.	0.10.1	upper drain unit	393	405	665	888 / 1425*	1352	70.0	cl.E 600 - 28.8 kg
D.I.11.	0.2.1	upper drain unit	393	345	665	707 / 1425*	1352	61.0	cl.F 900 - 39.9 kg
D.I.12.	-	cover plate with outlet No. 1.03.1	393	585	-	-	-	15.0	
D.I.13.	-	cover plate with outlet No. 1.07.1	393	525	-	-	-	13.0	
D.I.14.	-	cover plate with outlet No. 1.1	393	465	-	-	-	11.0	
D.I.15.	-	cover plate with outlet No. 10.1	393	405	-	-	-	9.0	
D.I.16.	-	cover plate with outlet No. 2.1	393	345	-	-	-	7.0	
D.I.17.	-	blind cover plate No. 1.03.1	393	585	-	-	-	20.0	
D.I.18.	-	blind cover plate No. 1.07.1	393	525	-	-	-	18.0	
D.I.19.	-	blind cover plate No. 1.1	393	465	-	-	-	16.0	
D.I.20.	-	blind cover plate No. 10.1	393	405	-	-	-	14.0	
D.I.21.	-	blind cover plate No. 2.1	393	345	-	-	-	12.0	

* drain inlet surface

ITEM D

CHANNELS WITH INTERNAL WIDTH OF 300mm

AS-A300



D.II.	Item number	CHANNELS AS-A300	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
D.II.1.	1.1	without slope	393	130	1000	181	1352	62.1	cl.C 250 - 27.9 kg
D.II.2.	0.1.1	upper drain unit	393	130	1000	181 / 1425*	1352	43.0	cl.D 400 - 33.9 kg
D.II.3.	-	cover plate with outlet No. 1.1	393	130	-	-	-	3.9	cl.E 600 - 43.2 kg
D.II.4.	-	blind cover plate No. 1.1	393	130	-	-	-	4.2	cl.F 900 - 59.9 kg

* drain inlet surface

D.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
D.III.1.	A	pass-through without outlet	393	440	675	97.0
D.III.2.	A	pass-through with side outlet	393	440	675	91.0
D.III.3.	A	pass-through with front outlet	393	440	675	91.0
D.III.4.	B	with bottom; without outlet	393	450	675	120.0
D.III.5.	B	with bottom; with side outlet	393	450	675	114.0
D.III.6.	B	with bottom; with front outlet	393	450	675	114.0
D.III.7.	-	contamination trap	280	350	400	6.7

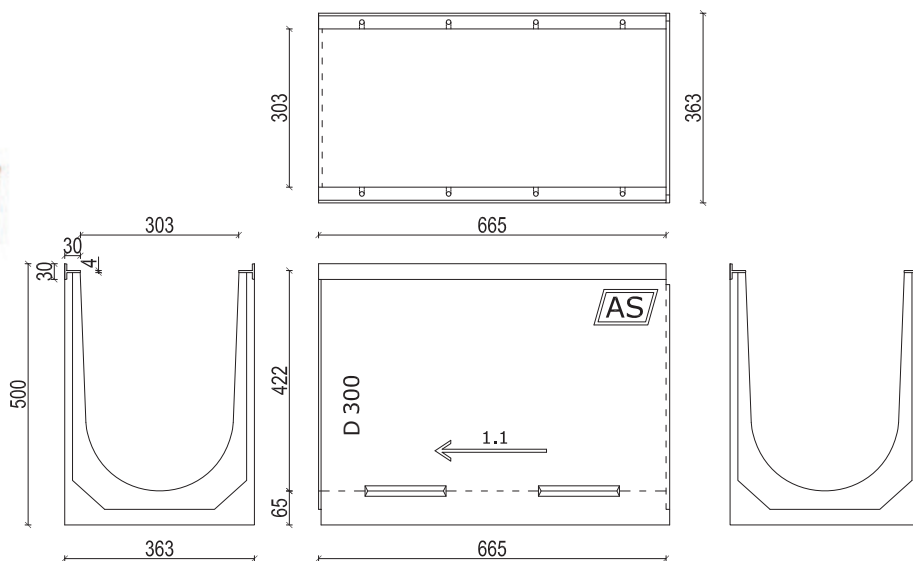


AS-300 and AS-A300 cast iron covers for channels designed for conducting the drain installation.

ITEM DT

CHANNELS WITH INTERNAL WIDTH OF 200mm

AS-300T



DT.I.	Item number	CHANNELS AS-300T	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mb]	Weight [kg]	Cast iron grates
DT.I.1.	1.1	without slope	363	500	665	1138	1351	101.0	
DT.I.2.	0.1.1	upper drain unit	363	500	665	1138/1425*	1351	81.0	kl.C 250 - 12.0 kg
DT.I.3.	-	cover plate with outlet No. 1.1	363	500	-	-	-	15.0	kl.D 400 - 14.9 kg
DT.I.4.	-	blind cover plate No. 1.1	363	500	-	-	-	17.0	

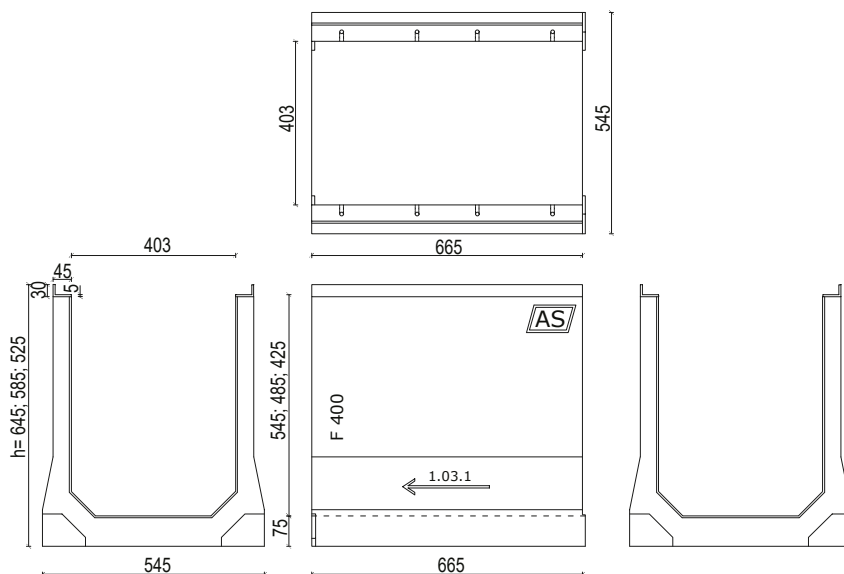
* drain inlet surface

D.III.	Numer elementu	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
D.III.1.	A	pass-through without outlet	393	440	675	97.0
D.III.2.	A	pass-through with side outlet	393	440	675	91.0
D.III.3.	A	pass-through with front outlet	393	440	675	91.0
D.III.4.	B	with bottom; without outlet	393	450	675	120.0
D.III.5.	B	with bottom; with side outlet	393	450	675	114.0
D.III.6.	B	with bottom; with front outlet	393	450	675	114.0
D.III.7.	-	contamination trap	280	350	400	6.7

ITEM E

CHANNELS WITH INTERNAL WIDTH OF 400mm

AS-400



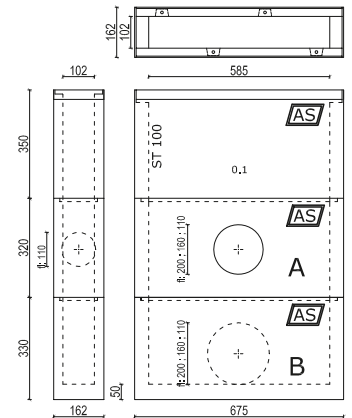
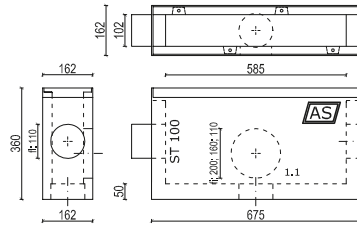
E.I.	Item number	CHANNELS AS-400	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Cast iron grates
E.I.1.	1.03.1	without slope	545	645	665	2160	1838 ¹ ; 2494 ²	162.5	
E.I.2.	1.07.1	without slope	545	585	665	1919	1838 ¹ ; 2494 ²	159.5	
E.I.3.	1.1	without slope	493	525	665	1677	1838 ¹ ; 2494 ²	131.5	
E.I.4.	0.1.03.1	upper drain unit	545	645	665	2160/1918*	1838 ¹ ; 2494 ²	121.5	Slotted grates
E.I.5.	0.1.07.1	upper drain unit	545	585	665	1919/1918*	1838 ¹ ; 2494 ²	118.5	cl.D 400 - 28.2 kg
E.I.6.	0.1.1	upper drain unit	493	525	665	1677/1918*	1838 ¹ ; 2494 ²	90.5	cl.F 900 - 49.8 kg
E.I.7.	-	cover plate with outlet No. 1.03.1	545	645	-	-	-	18.0	
E.I.8.	-	cover plate with outlet No. 1.07.1	545	585	-	-	-	16.0	Lattice grates
E.I.9.	-	cover plate with outlet No. 1.1	493	525	-	-	-	13.5	cl.D 400 - 27.9 kg
E.I.10.	-	blind cover plate No. 1.03.1	545	645	-	-	-	23.0	
E.I.11.	-	blind cover plate No. 1.07.1	545	585	-	-	-	21.0	
E.I.12.	-	blind cover plate No. 1.1	493	525	-	-	-	18.5	

* drain inlet surface

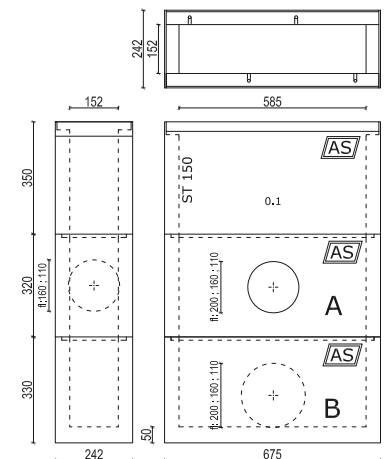
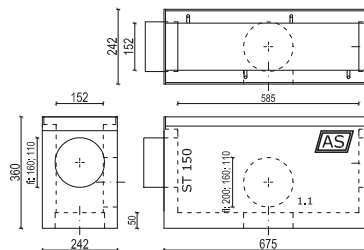
¹ - slotted grate

² - lattice grates

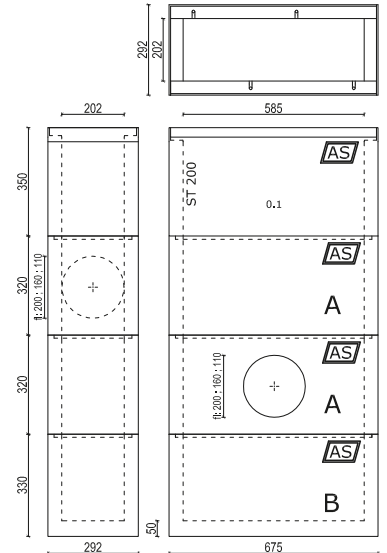
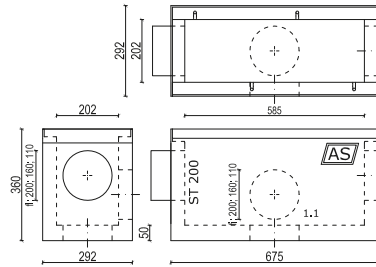
E.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
E.II.1.	A	pass-through without outlet	493	440	675	113.5
E.II.2.	A	pass-through with side outlet	493	440	675	110.0
E.II.3.	A	pass-through with front outlet	493	440	675	110.0
E.II.4.	B	with bottom; without outlet	493	450	675	147.5
E.II.5.	B	with bottom; with side outlet	493	450	675	144.0
E.II.6.	B	with bottom; with front outlet	493	450	675	144.0
E.II.7.	-	contamination trap	380	350	400	8.0

ITEM G.I
CHANNELS WITH INTERNAL WIDTH OF 100mm
AS-ST100


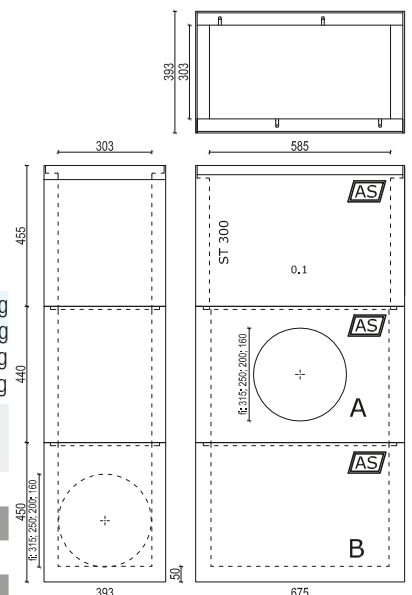
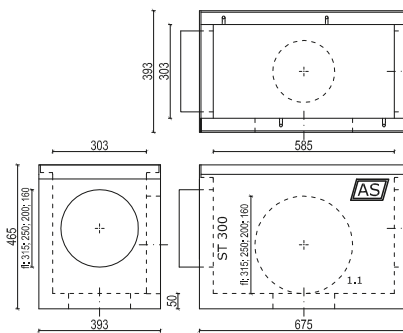
G.I.	Item number	Multifunctional gully	Width [mm]	Height [mm]	Length [mm]	Inlet surface area [cm ² /pcs.]	Weight [kg]	Cast iron grates
G.I.1.	0.1	upper drain unit	162	350	675	289	40.0	cl. C 250 - 3.3 kg cl. D 400 - 4.4 kg
G.I.2.	1.1	inspection unit with bottom	162	350	675	289	45.0	cl. E 600 - 4.8 kg cl. F 900 - 6.2 kg
A.V.	Item number	DRAIN COMPONENTS			Width [mm]	Height [mm]	Length [mm]	Weight [kg]
A.V.1.	A	pass-through without outlet			162	320	675	38.4
A.V.2.	A	pass-through with side outlet			162	320	675	37.3
A.V.3.	A	pass-through with front outlet			162	320	675	37.0
A.V.4.	B	with bottom; without outlet			162	330	675	49.9
A.V.5.	B	with bottom; with side outlet			162	330	675	48.8
A.V.6.	B	with bottom; with front outlet			162	330	675	48.5
A.V.7.	-	contamination trap			80	250	430	3.0

ITEM G.II
CHANNELS WITH INTERNAL WIDTH OF 150mm
AS-ST150


G.II.	Item number	Multifunctional gully	Width [mm]	Height [mm]	Length [mm]	Inlet surface area [cm ² /pcs.]	Weight [kg]	Cast iron grates
G.II.1.	0.1	upper drain unit	242	350	675	483	65.0	cl. C 250 - 8.0 kg cl. D 400 - 9.4 kg
G.II.2.	1.1	inspection unit with bottom	242	360	675	483	76.0	cl. E 600 - 10.2 kg cl. F 900 - 12.6 kg
B.III.	Item number	DRAIN COMPONENTS			Width [mm]	Height [mm]	Length [mm]	Weight [kg]
B.III.1.	A	pass-through without outlet			242	320	675	53.7
B.III.2.	A	pass-through with side outlet			242	320	675	52.2
B.III.3.	A	pass-through with front outlet			242	320	675	52.2
B.III.4.	B	with bottom; without outlet			242	330	675	66.4
B.III.5.	B	with bottom; with side outlet			242	330	675	64.9
B.III.6.	B	with bottom; with front outlet			242	330	675	64.9
B.III.7.	-	contamination trap			130	250	430	3.5

ITEM G.III
CHANNELS WITH INTERNAL WIDTH OF 200mm
AS-ST200


G.III.	Item number	Multifunctional gully	Width [mm]	Height [mm]	Length [mm]	Inlet surface area [cm²/pcs.]	Weight [kg]	Cast iron grates
G.III.1.	0.1	upper drain unit	292	350	675	589	74.4	cl. C 250 - 10.4 kg cl. D 400 - 11.6 kg
G.III.2.	1.1	inspection unit with bottom	292	360	675	589	77.2	cl. E 600 - 15.2 kg cl. F 900 - 17.6 kg
C.IV.	Item number	DRAIN COMPONENTS			Width [mm]	Height [mm]	Length [mm]	Weight [kg]
C.IV.1.	A	pass-through without outlet			292	320	675	61.9
C.IV.2.	A	pass-through with side outlet			292	320	675	60.4
C.IV.3.	A	pass-through with front outlet			292	320	675	60.4
C.IV.4.	B	with bottom; without outlet			292	330	675	77.6
C.IV.5.	B	with bottom; with side outlet			292	330	675	76.1
C.IV.6.	B	with bottom; with front outlet			292	330	675	76.1
C.IV.7.	-	contamination trap			180	250	430	3.8

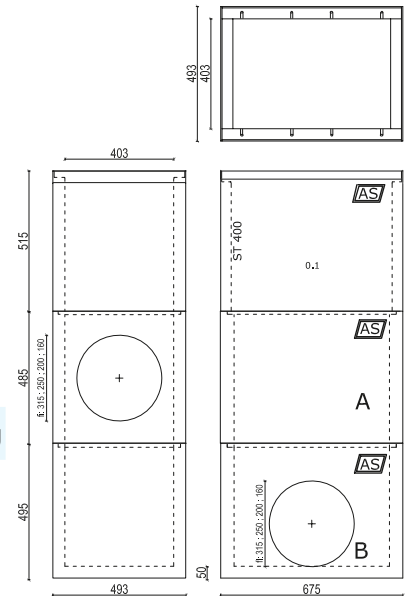
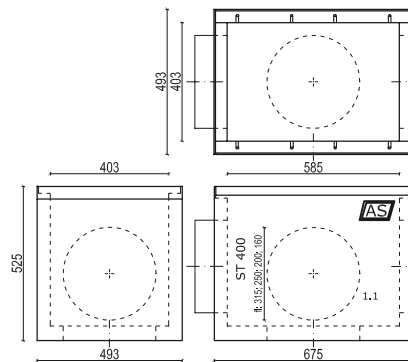
ITEM G.IV
CHANNELS WITH INTERNAL WIDTH OF 300mm
AS-ST300


G.IV.	Item number	Multifunctional gully	Width [mm]	Height [mm]	Length [mm]	Inlet surface area [cm²/pcs.]	Weight [kg]	Cast iron grates
G.IV.1.	0.1	upper drain unit	393	455	675	901	102.2	cl. C 250 - 18.6 kg cl. D 400 - 22.6 kg
G.IV.2.	1.1	inspection unit with bottom	393	465	675	901	119.0	cl. E 600 - 28.8 kg cl. F 900 - 39.9 kg
D.III.	Item number	DRAIN COMPONENTS			Width [mm]	Height [mm]	Length [mm]	Weight [kg]
D.III.1.	A	pass-through without outlet			393	440	675	97.0
D.III.2.	A	pass-through with side outlet			393	440	675	91.0
D.III.3.	A	pass-through with front outlet			393	440	675	91.0
D.III.4.	B	with bottom; without outlet			393	450	675	120.0
D.III.5.	B	with bottom; with side outlet			393	450	675	114.0
D.III.6.	B	with bottom; with front outlet			393	450	675	114.0
D.III.7.	-	contamination trap			280	350	430	7.8

ITEM G.V

CHANNELS WITH INTERNAL WIDTH OF 400mm

AS-ST400



G.V.	Item number	Multifunctional gully	Width [mm]	Height [mm]	Length [mm]	Inlet surface area [cm ² /pcs.]	Weight [kg]	Cast iron grates
G.V.1.	0.1	upper drain unit	493	515	675	1838 ¹ ; 2494 ²	118.5	cl.D 400 - 28.2 kg
G.V.2.	1.1	inspection unit with bottom	493	525	675	1838 ¹ ; 2494 ²	139.5	cl.F 900 - 49.8 kg

* drain inlet surface

¹ - slotted grate

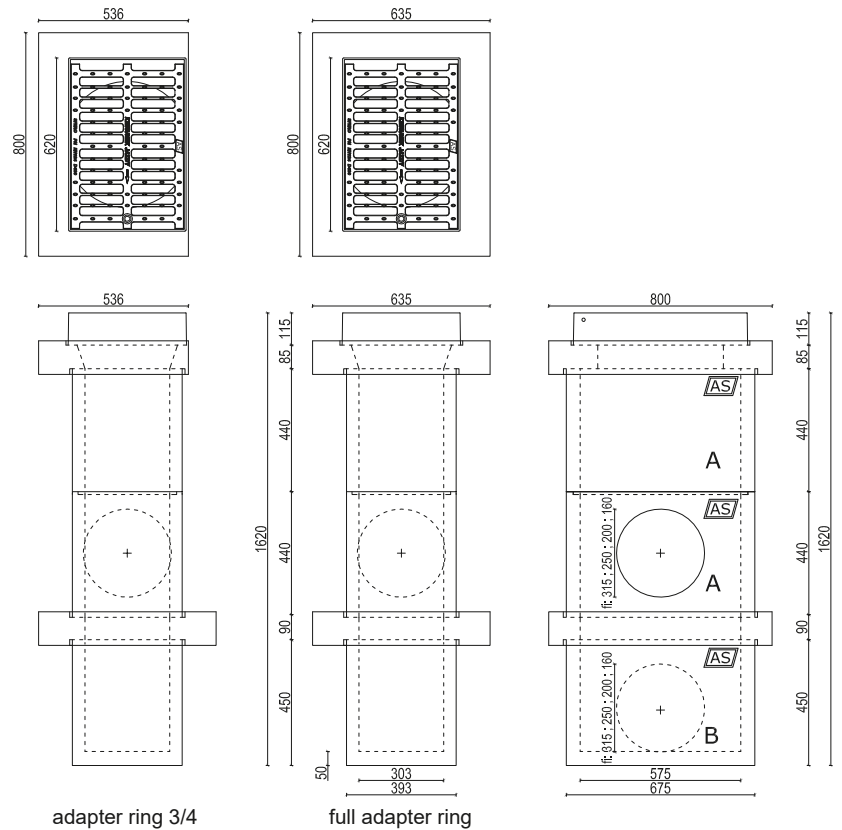
² - lattice grates

E.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
E.II.1.	A	pass-through without outlet	493	485	675	113.5
E.II.2.	A	pass-through with side outlet	493	485	675	110.0
E.II.3.	A	pass-through with front outlet	493	485	675	110.0
E.II.4.	B	with bottom; without outlet	493	495	675	147.5
E.II.5.	B	with bottom; with side outlet	493	495	675	144.0
E.II.6.	B	with bottom; with front outlet	493	495	675	144.0
E.II.7.	-	contamination trap	380	350	430	8.0

ITEM H

DRAINS WITH INTERNAL WIDTH OF 300mm

AS-ST300WU



adapter ring 3/4

full adapter ring

H.I.	Item number	Drains for street gullies	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Strength class
H.I.1.	C	full adapter ring (groove mounted)	635	90	800	96.0	
H.I.2.	D	adapter ring 3/4 (groove mounted)	536	90	800	77.0	D 400 - E 600
H.I.3.	E	reinforcing ring	635	90	800	87.0	
D.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	
D.III.1.	A	pass-through without outlet	393	440	675	97.0	
D.III.2.	A	pass-through with side outlet	393	440	675	91.0	
D.III.3.	A	pass-through with front outlet	393	440	675	91.0	
D.III.4.	B	with bottom; without outlet	393	450	675	120.0	
D.III.5.	B	with bottom; with side outlet	393	450	675	114.0	
D.III.6.	B	with bottom; with front outlet	393	450	675	114.0	
D.III.7.	-	contamination trap	280	350	430	7.8	

WATER DRAINAGE FROM AS LINEAR DRAINAGE RUNS

Direct drainage – without outlet gullies

- front drainage, using a cover plate with a discharge port,
- side drainage, using a hole with a reducer and a gasket,
- bottom drainage, using a hole with a reducer and a gasket on the channel bed. (Fig. 5)

Outlet holes with the diameters of $\varnothing 110$, $\varnothing 160$, $\varnothing 200$, $\varnothing 250$, $\varnothing 315$.

Using outlet gullies or sump/outlet gullies

A gully in the AS system consists of:

- upper drain unit with grating and a rectangular hole in the bottom,
- intermediate, pass-through A units,
- B units with bottom (Fig. 1, 2, 3, 4),
- contamination trap.

Drain components are “tongue and groove” connected.

Outlet holes with a reducer and a gasket with the diameters of $\varnothing 110$, $\varnothing 160$, $\varnothing 200$, $\varnothing 250$, $\varnothing 315$.

It is recommended to place the settler below frost line.

Outlet gullies and sump/outlet gullies can be fitted with contamination traps. Traps are made of galvanized steel sheet. The walls and the bottom are perforated with holes for water drainage. AS contamination trap does not obstruct the water flow when filled to capacity, however, in that case, it does not capture contaminants.

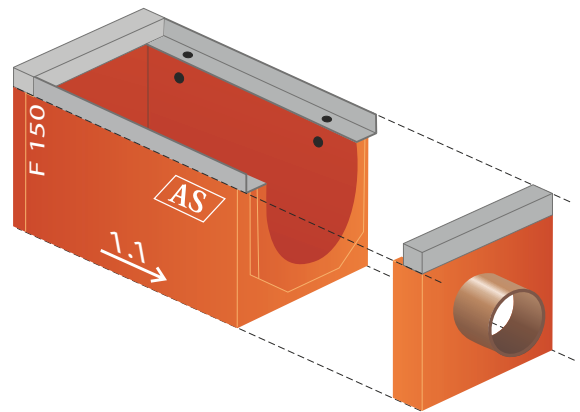
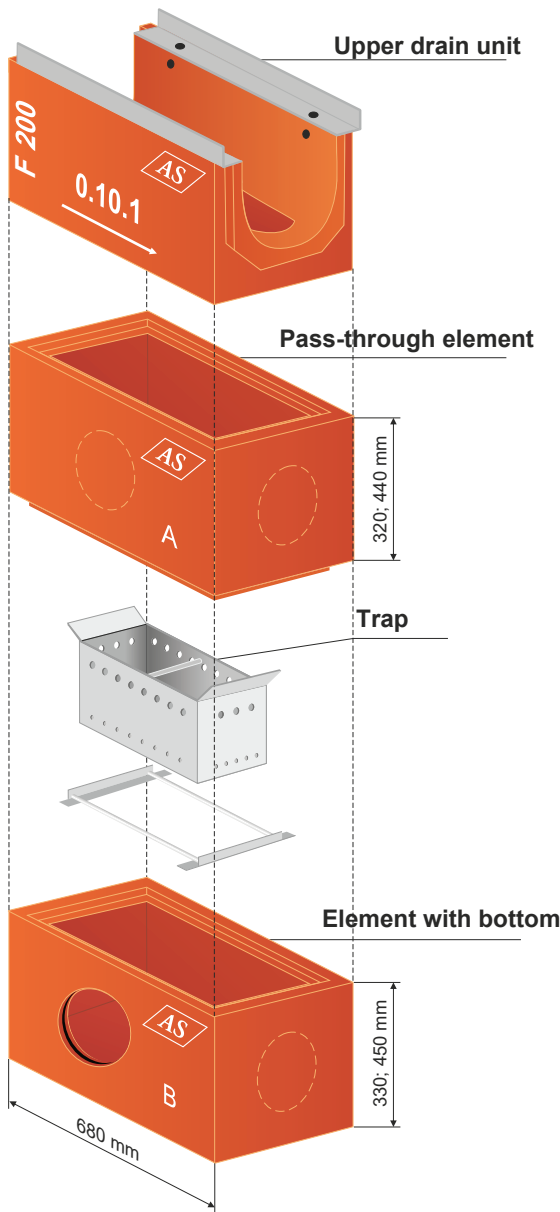


Fig. 1
outlet gully

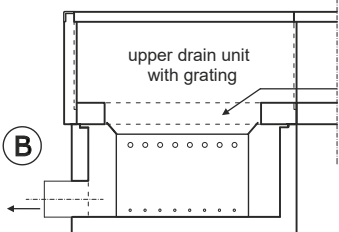


Fig. 2
sump/outlet gully

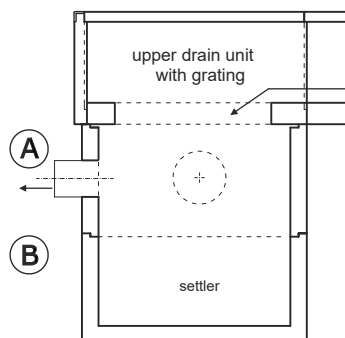


Fig. 3
outlet gully

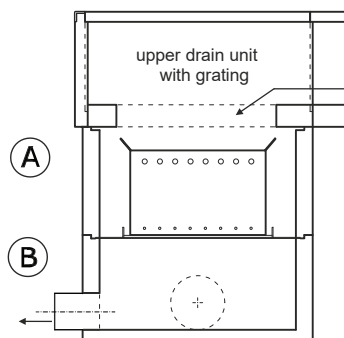


Fig. 4
sump/outlet gully

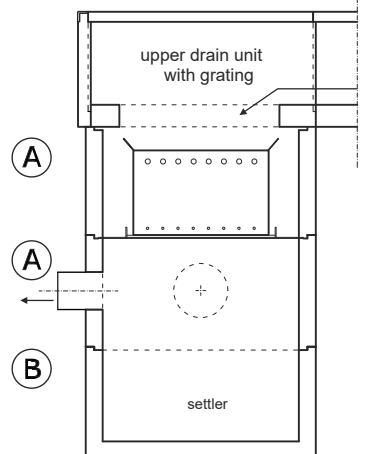
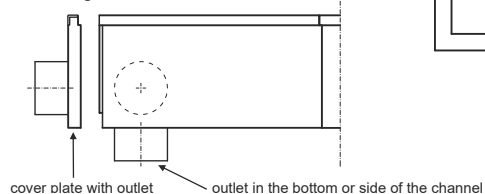
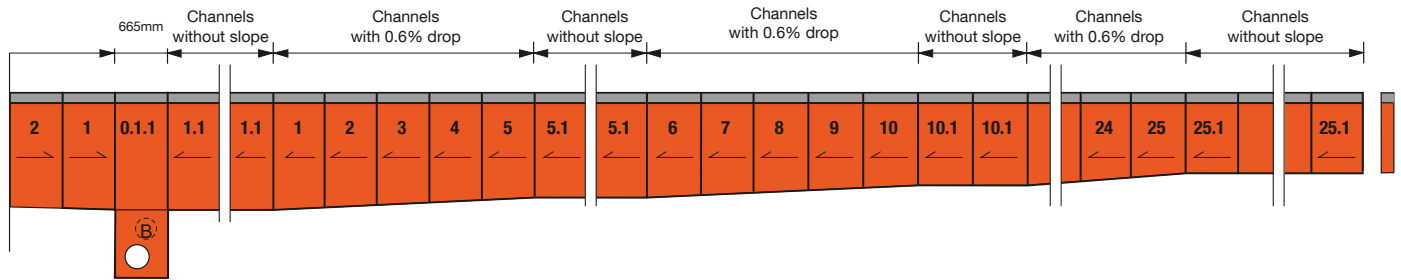


Fig. 5

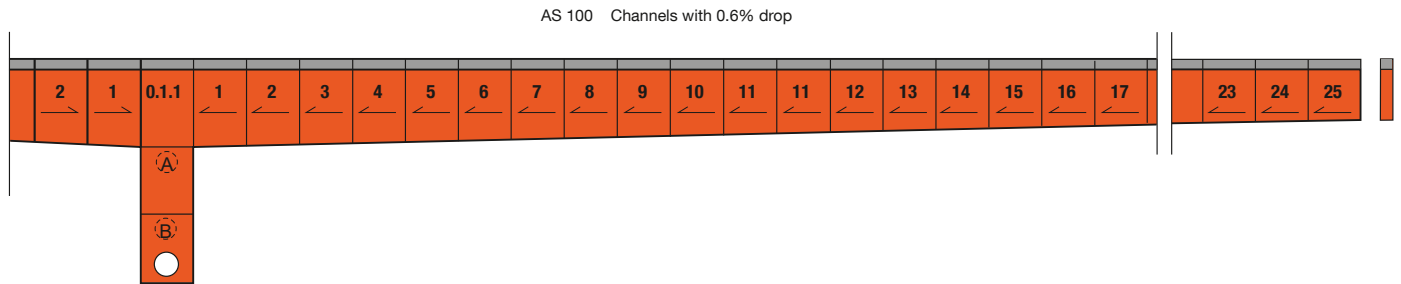


TECHNOLOGICAL SCOPE

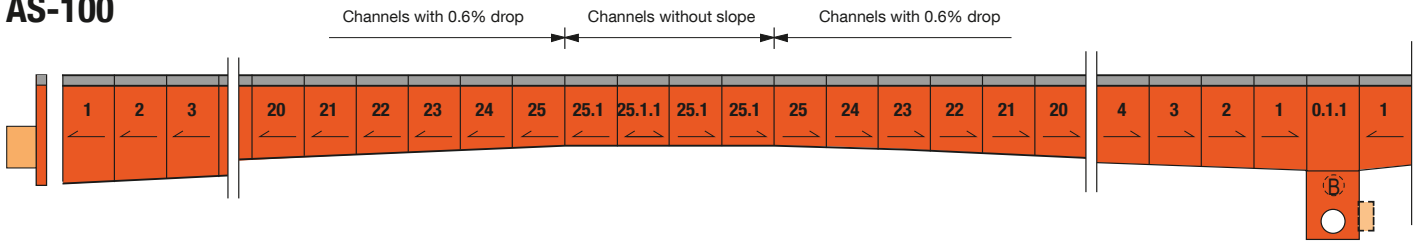
AS-100



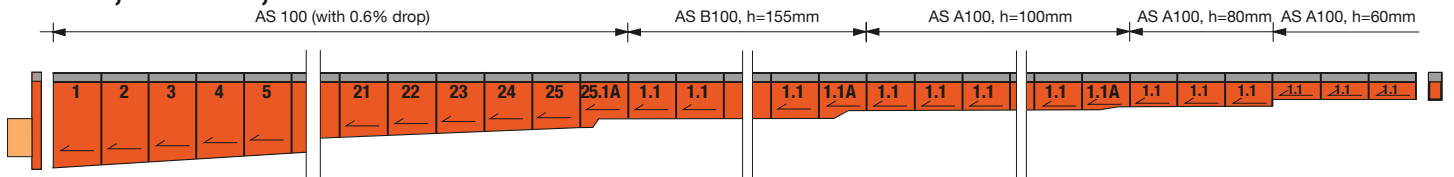
AS-100



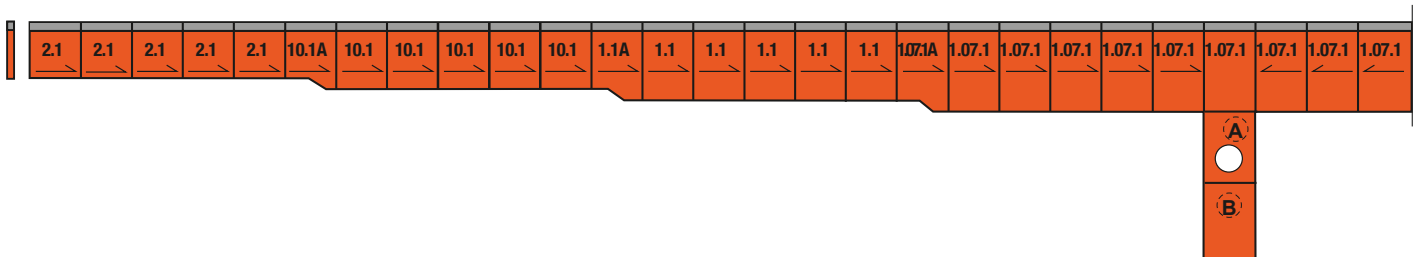
AS-100



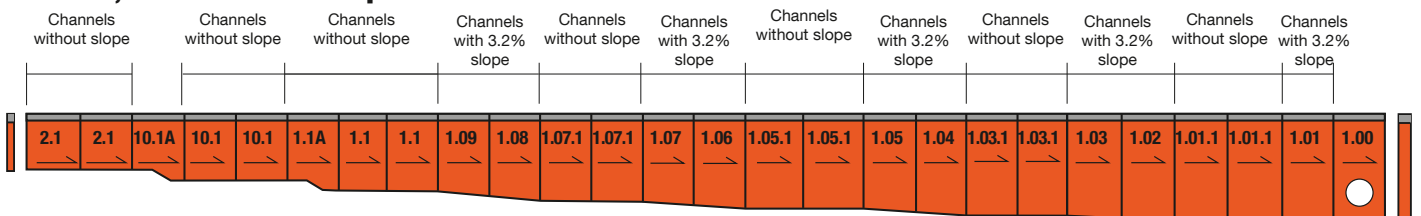
AS-100, AS-B100, AS-A100



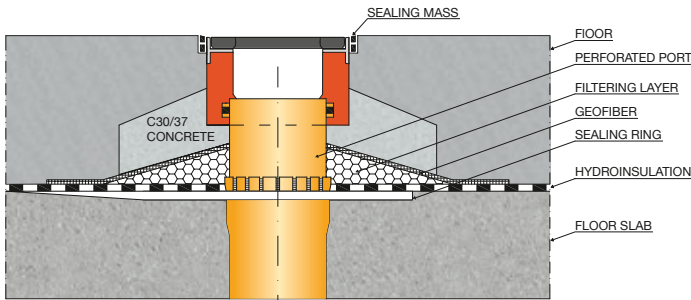
AS-150, AS-150T, AS-200, AS-300, AS-400



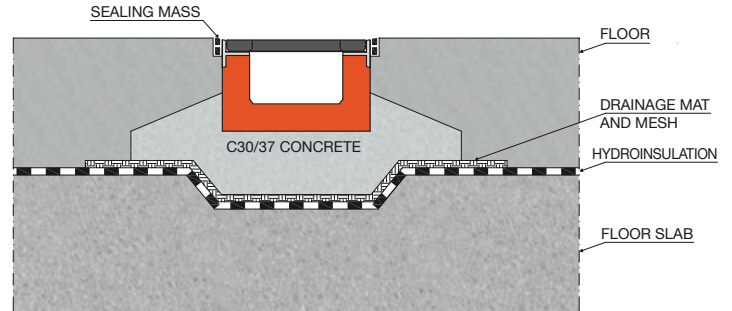
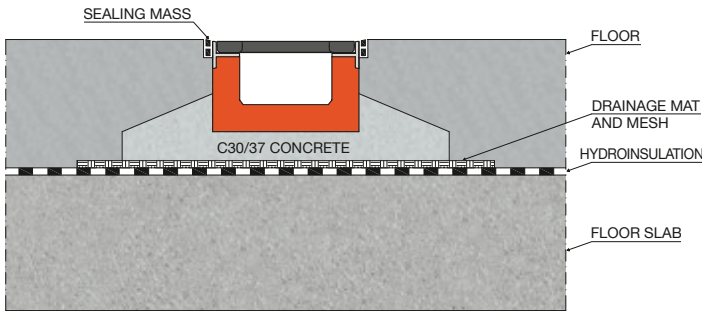
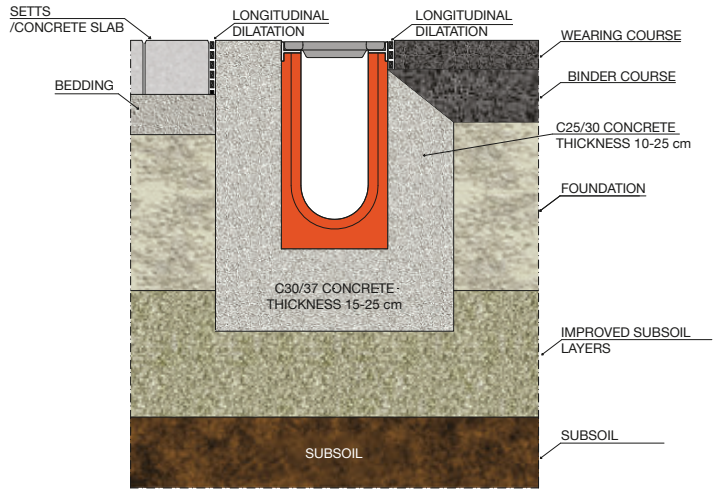
AS-200, AS-200 with slope



INSTALLATION AND EMBEDMENT



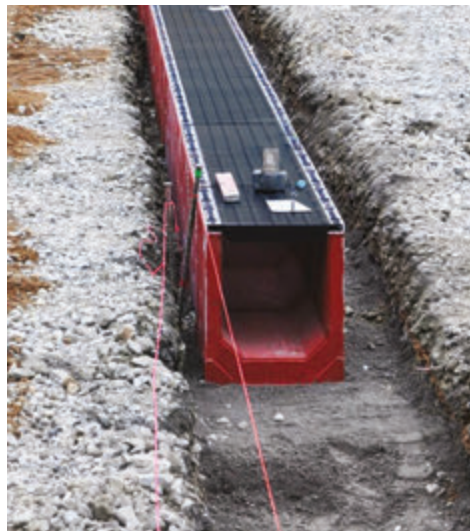
Embedment with AS type leak-proof duct



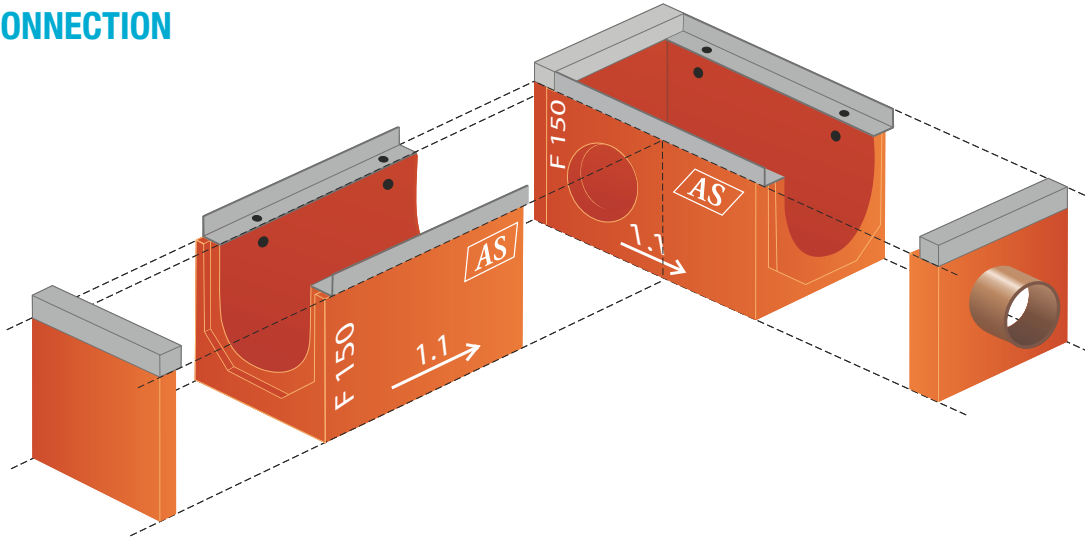
Laying drainage channels in semi-dry concrete.

To obtain a leak-proof connection, the adhesive mortar should be applied on the channel's groove and drawn its excess off after pressing in another channel. Next, concrete the sides according to the drawings. Concrete used for making the footing and concreting cannot be of a lower class than the ground and the drained surface. Concrete used for making the footing and concreting cannot be of a lower

class than C30/37. Individual components are joined with frost-proof and watertight mortars. When mounting on floor surfaces and terraces, the channels must be joined with frost-proof, watertight and flexible mortars. The dilatation should be carried out with the use of sealing masses. The channels can be cut – preferably along the spots of grate jointing.



ANGULAR CONNECTION



GRATE ASSEMBLY- SAFETY AND USE

Type of fixing

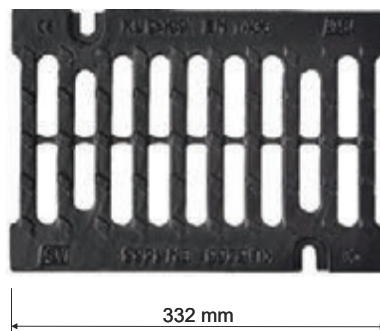
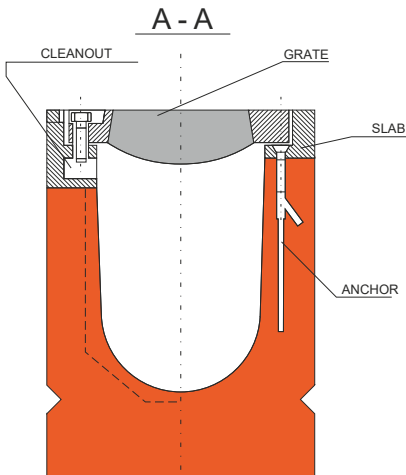
Bolt fixing with bolts located in channel wall fittings (frames)
 - six bolts per 1 LM (channels with the internal diameter of 100, 150 and 200 mm), twelve bolts per 1 LM (channels with the internal diameter of 300 and 400 mm).

Bolt fixing meets safety requirements concerning exploitation in difficult conditions. This type of fixing ensures reliable cooperation between the grate and the channel body, provided by: grate locking devices, elimination of clearance and stab faulting, which tend to occur with other solutions, causing a lot of damage to entire drainage systems.

Bolts used in all types of fixing are made from stainless steel of increased strength, which secures against rupture and damage. Bolts are screwed into zinc plated threaded sockets fitted with pass-through channels for cleaning.

Using stainless steel bolts effectively protects against corrosion.

This solution enables easy unscrewing and tightening bolts with a simple tool. Six bolts on the length of 1 meter is the optimal number to ensure safety and, at the same time, it does not require excessive maintenance workload.



Cast iron cover plate

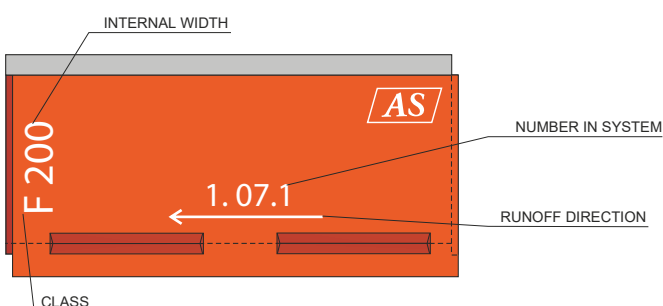


Cast iron hot-dip galvanized grate



Painted grate

EXAMPLE OF CHANNEL AND GRATE TYPE DESIGNATION



REINFORCED CONCRETE DRAINAGE SYSTEMS WITH GRATING

CE marking – PN-EN 1433:2005

Declaration of performance

Hygienic Approval No. HK/B/0438/01/2016

Catalogue No. AF-DF

1. Intended use / place of use

Used in areas exposed to exceptionally high loads, such as:

Airports, transshipment docks, quays, roads, streets, car parks, filling stations, maneuvering yards, car washes, etc.

2. Material

Polymer-cement concrete reinforced with alkali resistant fiberglass (class C60/75), reinforcing steel, hot-dip galvanized hot-rolled steel, ductile iron.

3. Diameters

100, 150, 200, 300mm.

4. Strength class

B125, C250, D400, E600, F900 kN.

5. Technological scope

- units without internal slope,
- components can be joined with angular and cascade connections,
- gullies with contamination traps, cover plates with discharge ports, blind cover plates,
- bodies with holes in the bottom or side walls to drain water.

6. Advantages of slot monolith drainage systems:

- reinforced concrete drainage channels with type I grating, not requiring side concreting,
- drain bodies made from polymer - cement concrete of strength class C60/75,
- the application of alkali resistant fiberglass in concrete improves channel's flexure and impact strength,
- concrete resistance to long-term frost exposure and defrosting salts (+R), according to PN-EN 1433:2005,
- concrete chemical resistance, including oil derivatives, according to PN-EN 858-1:2005,
- frames made of hot-dip galvanized hot-rolled extrusions anchored in body walls, characterized by much better strength parameters than cast iron slats and other slats made of thin cold-rolled sheet.
- grates made from ductile iron (class C250 kN to F900 kN), screwed with stainless steel bolts of increased strength provided by: a grate locking device, elimination of clearance and stab faulting, which cause a lot of damage to drainage components in other fitting solutions.
- grates covered with paint coatings and processed with the KTL method, being one of the best methods on the market for protecting metal parts against corrosion,
- possibility to cover cast iron grates with hot-dip zinc coating, which permanently protects the grid against corrosion,
- holes for water drainage from bodies are fitted with PVC reducers with gaskets.



IMPLEMENTATIONS



Panattoni Europe
Grodzisk Mazowiecki
 AS-150 Type I



Panattoni Europe
Grodzisk Mazowiecki
 AS-150 Type I



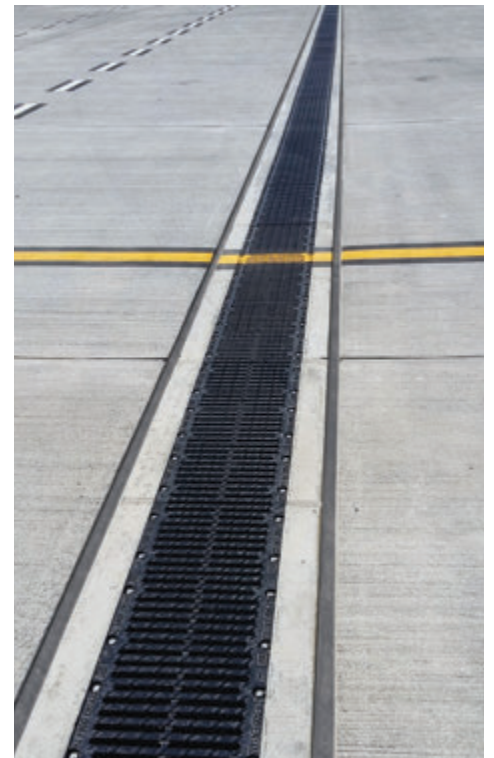
Panattoni Europe
Grodzisk Mazowiecki
 AS-150 Type I



Airport
Wrocław
 AS-300 Type I



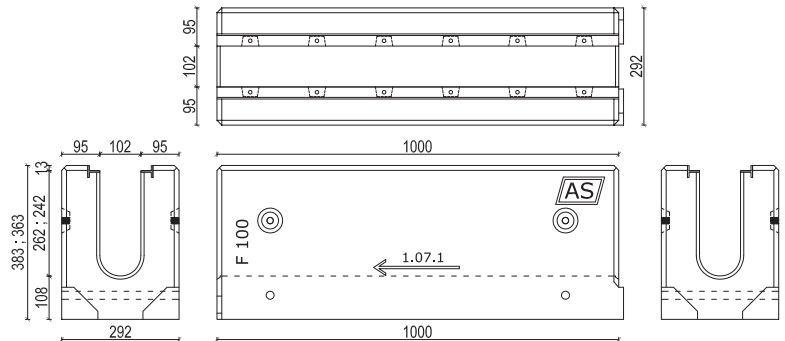
Airport
Wrocław
 AS-150 Type I



Airport
Wrocław
 AS-300 Type I

ITEM AF
CHANNELS WITH INTERNAL WIDTH OF 150mm

AS-100 Type I



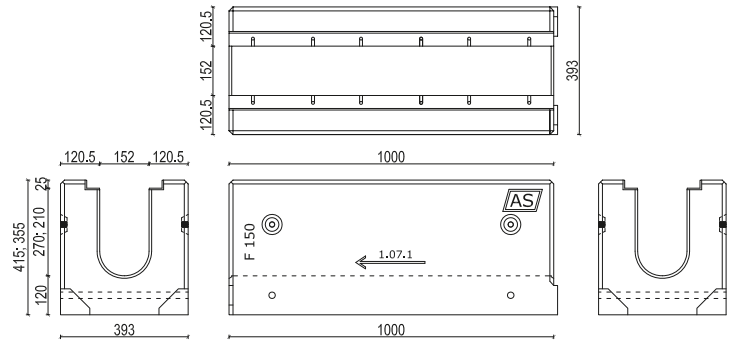
AF.I.	Item number	CHANNELS AS-100 Typ I	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mb]	Weight [kg]	Cast iron grates
AF.I.1.	1.07.1	without slope	292	383	1000	256	434	202.0	
AF.I.2.	1.1	without slope	292	363	1000	236	434	193.0	kl.B 125 - 4.3 kg
AF.I.3.	0.1.07.1	upper drain unit	292	383	1000	256/592*	434	184.0	kl.C 250 - 4.9 kg
AF.I.4.	0.1.1	upper drain unit	292	363	1000	236/592*	434	175.0	kl.D 400 - 6.6 kg
AF.I.5.	-	cover plate with outlet No. 1.07.1	292	383	-	-	-	7.0	kl.E 600 - 7.1 kg
AF.I.6.	-	cover plate with outlet No. 1.1	292	363	-	-	-	5.0	kl.F 900 - 9.3 kg
AF.I.7.	-	blind cover plate No. 0.1.07.1	292	383	-	-	-	8.0	
AF.I.8.	-	blind cover plate No. 1.1	292	363	-	-	-	6.0	

* drain inlet surface

AF.II.	Numer elementu	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
AF.II.1.	A	pass-through without outlet	292	440	766	169.0
AF.II.2.	A	pass-through with side outlet	292	440	766	162.0
AF.II.3.	A	pass-through with front outlet	292	440	766	162.0
AF.II.4.	B	with bottom; without outlet	292	450	766	193.0
AF.II.5.	B	with bottom; with side outlet	292	450	766	186.0
AF.II.6.	B	with bottom; with front outlet	292	450	766	186.0
AF.II.7.	-	contamination trap	80	250	430	3.0

ITEM BF
CHANNELS WITH INTERNAL WIDTH OF 150mm

AS-150 Type I



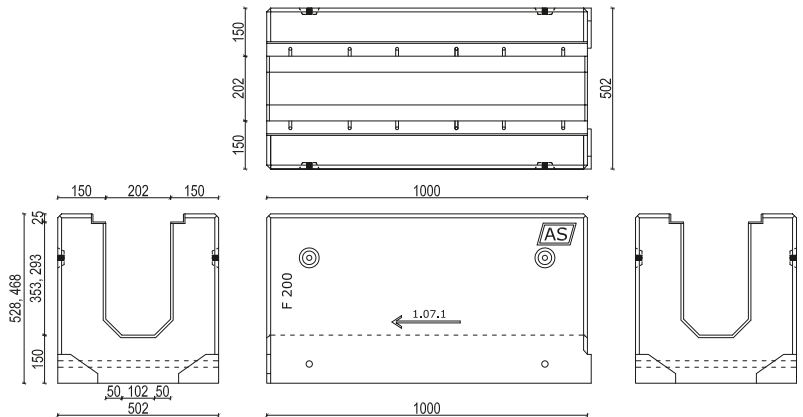
BF.I.	Item number	CHANNELS AS-150 Type I	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
BF.I.1.	1.07.1	without slope	393	415	1000	386	725	295.0	
BF.I.2.	1.1	without slope	393	355	1000	294	725	259.0	
BF.I.3.	0.1.07.1	upper drain unit	393	415	1000	386/882*	725	265.0	cl.C 250 - 12.0kg
BF.I.4.	0.1.1	upper drain unit	393	355	1000	294/882*	725	229.0	cl.D 400 - 14.1kg
BF.I.5.	-	cover plate with outlet No. 1.07.1	393	415	-	-	-	15.0	cl.E 600 - 15.3kg
BF.I.6.	-	cover plate with outlet No. 1.1	393	355	-	-	-	12.0	cl.F 900 - 18.9kg
BF.I.7.	-	blind cover plate No. 0.1.07.1	393	415	-	-	-	17.0	
BF.I.8.	-	blind cover plate No. 1.1	393	355	-	-	-	14.0	

* drain inlet surface

BF.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
BF.II.1.	A	pass-through without outlet	332	440	780	192.0
BF.II.2.	A	pass-through with side outlet	332	440	780	182.0
BF.II.3.	A	pass-through with front outlet	332	440	780	182.0
BF.II.4.	B	with bottom; without outlet	332	450	780	222.0
BF.II.5.	B	with bottom; with side outlet	332	450	780	212.0
BF.II.6.	B	with bottom; with front outlet	332	450	780	212.0
BF.II.7.	-	contamination trap	130	250	400	3.5

ITEM CF
CHANNELS WITH INTERNAL WIDTH OF 200mm

AS-200 Type I



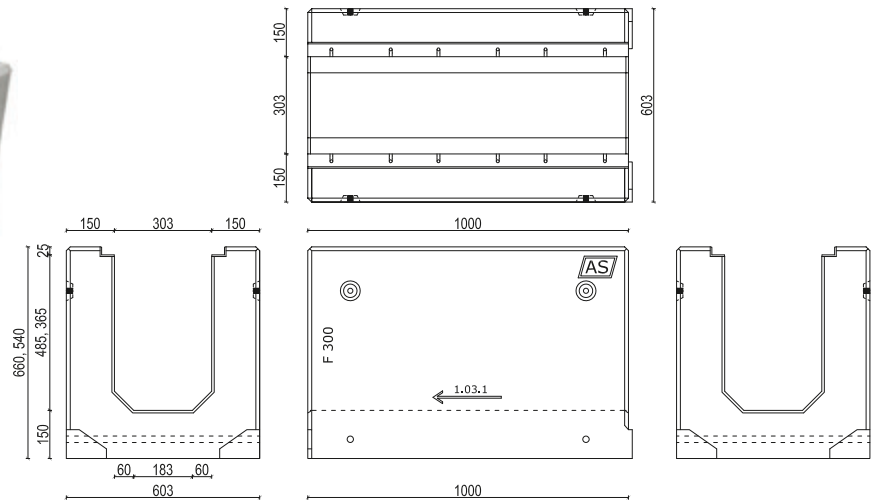
CF.I.	Item number	CHANNELS AS-200 Type I	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
CF.I.1.	1.07.1	without slope	502	528	1000	688	883	471.0	
CF.I.2.	1.1	without slope	502	468	1000	567	883	426.0	
CF.I.3.	0.1.07.1	upper drain unit	502	528	1000	688/1172*	883	424.0	cl.C 250 - 15.6kg
CF.I.4.	0.1.1	upper drain unit	502	468	1000	567/1172*	883	378.0	cl.D 400 - 17.4kg
CF.I.5.	-	cover plate with outlet No. 1.07.1	502	528	-	-	-	25.0	cl.E 600 - 22.8kg
CF.I.6.	-	cover plate with outlet No. 1.1	502	468	-	-	-	22.0	cl.F 900 - 26.4kg
CF.I.7.	-	blind cover plate No. 0.1.07.1	502	528	-	-	-	22.0	
CF.I.8.	-	blind cover plate No. 1.1	502	468	-	-	-	19.0	

* drain inlet surface

CF.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
CF.II.1.	A	pass-through without outlet	382	440	780	212.0
CF.II.2.	A	pass-through with side outlet	382	440	780	201.0
CF.II.3.	A	pass-through with front outlet	382	440	780	201.0
CF.II.4.	B	with bottom; without outlet	382	450	780	242.0
CF.II.5.	B	with bottom; with side outlet	382	450	780	231.0
CF.II.6.	B	with bottom; with front outlet	382	450	780	231.0
CF.II.7.	-	contamination trap	180	250	400	3.8

ITEM DF
CHANNELS WITH INTERNAL WIDTH OF 300mm

AS-300 Type I



DF.I.	Item number	CHANNELS AS-300 Type I	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Cast iron grates
DF.I.1.	1.03.1	without slope	603	660	1000	1434	1352	610.0	
DF.I.2.	1.1	without slope	603	540	1000	1070	1352	520.0	
DF.I.3.	0.1.03.1	upper drain unit	603	660	1000	1434/1757*	1352	540.0	cl.C 250 - 27.9kg
DF.I.4.	0.1.1	upper drain unit	603	540	1000	1070/1757*	1352	450.0	cl.D 400 - 33.9kg
DF.I.5.	-	cover plate with outlet No. 1.03.1	603	660	-	-	-	40.0	cl.E 600 - 43.1kg
DF.I.6.	-	cover plate with outlet No. 1.1	603	540	-	-	-	30.0	cl.F 900 - 59.9kg
DF.I.7.	-	blind cover plate No. 1.03.1	603	660	-	-	-	57.0	
DF.I.8.	-	blind cover plate No. 1.1	603	540	-	-	-	47.0	

* drain inlet surface

DF.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
DF.II.1.	A	pass-through without outlet	483	440	780	264.0
DF.II.2.	A	pass-through with side outlet	483	440	780	255.0
DF.II.3.	A	pass-through with front outlet	483	440	780	255.0
DF.II.4.	B	with bottom; without outlet	483	450	780	285.0
DF.II.5.	B	with bottom; with side outlet	483	450	780	276.0
DF.II.6.	B	with bottom; with front outlet	483	450	780	276.0
DF.II.7.	-	contamination trap	280	350	400	3.5

WATER DRAINAGE FROM AS LINEAR DRAINAGE RUNS

Direct drainage – without discharge drains

- front drainage, using a cover plate with a discharge port,
- side drainage, using a hole with a reducer and a gasket,
- bottom drainage, using a hole with a reducer and a gasket on the channel bed. (Fig. nr 5)

Outlet holes with the diameters of $\varnothing 110$, $\varnothing 160$, $\varnothing 200$, $\varnothing 250$, $\varnothing 315$.

Using outlet gullies or sump/outlet gullies.

SA gully in the AS system consists of:

- upper drain unit with grating and a rectangular hole in the bottom,
- intermediate, pass-through A units,
- B units with bottom (Fig. 1, 2, 3, 4),
- contamination trap.

Drain components are “tongue and groove” connected.

Outlet holes with a reducer and a gasket with the diameters of $\varnothing 110$, $\varnothing 160$, $\varnothing 200$, $\varnothing 250$, $\varnothing 315$.

It is recommended to place the settler below frost line.

Outlet gullies and sump/outlet gullies can be fitted with contamination traps. Traps are made of galvanized steel sheet. The walls and the bottom are perforated with holes for water drainage. AS contamination trap does not obstruct the water flow when filled to capacity, however, in that case, it does not capture contaminants.

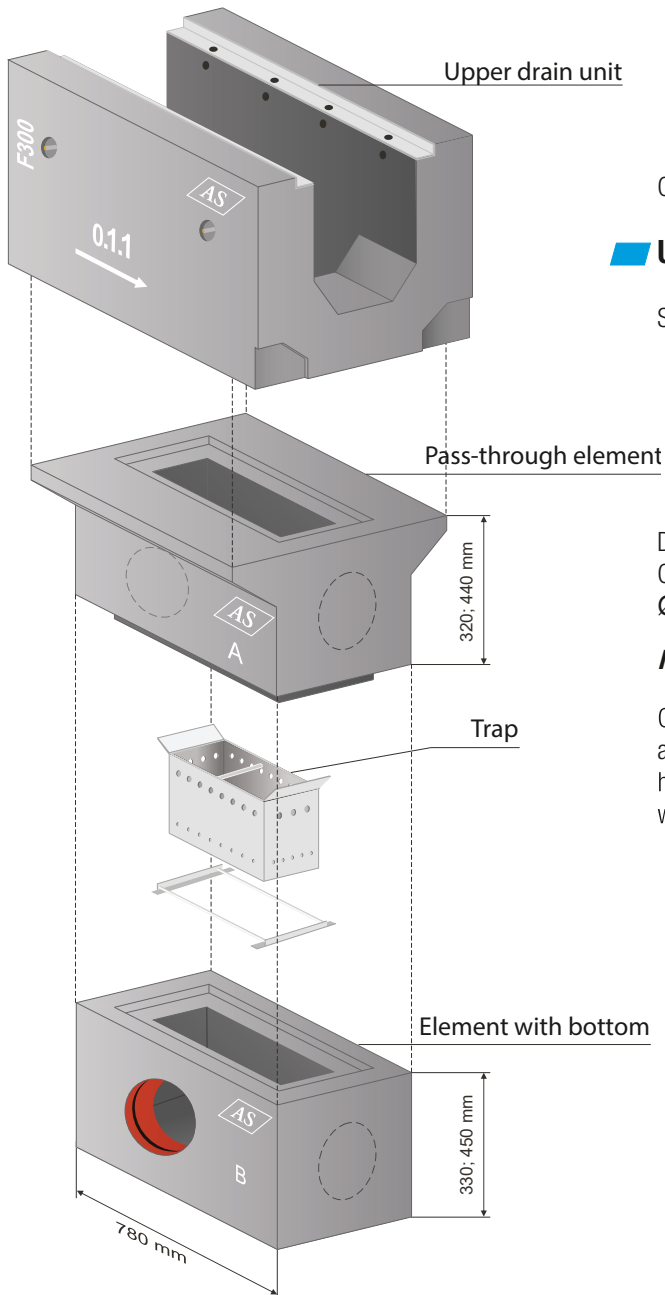


Fig. 1 outlet gully

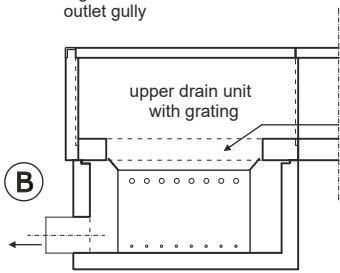


Fig. 2 sump/outlet gully

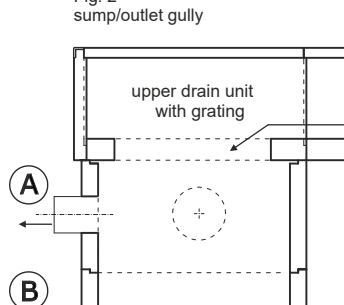


Fig. 3 outlet gully

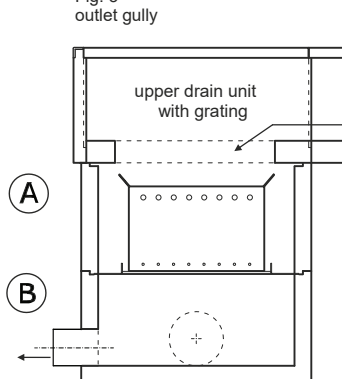


Fig. 4 sump/outlet gully

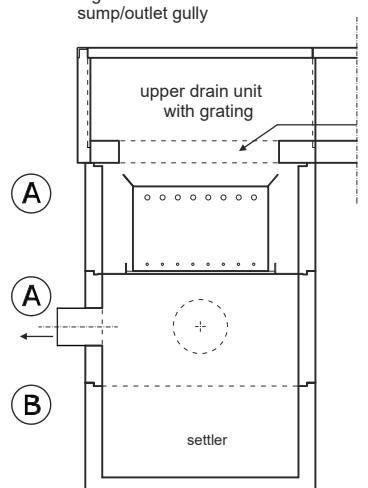
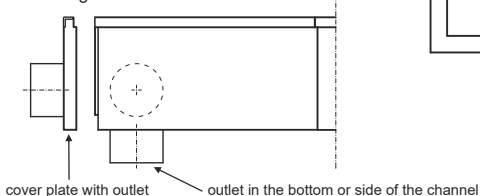
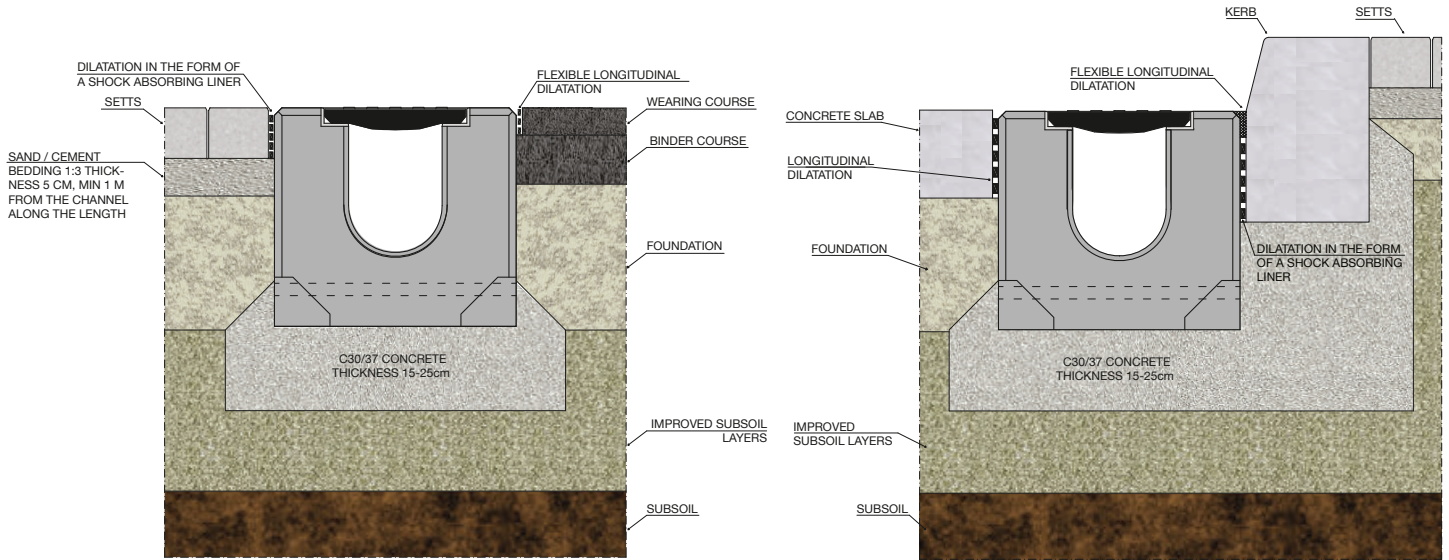


Fig. 5



INSTALLATION AND EMBEDMENT



Reinforced concrete drainage channels with grating do not require side concreting, only providing a concrete strip footing to prevent the channel from subsiding.

The use of semi-dry concrete under the trays enables accurate and easy leveling.

Concrete used for making the footing and concreting cannot be of a lower class than the ground and the drained surface.

Individual components are joined with frost-proof and watertight mortars. The dilatation should be carried out with the use of sealing masses. The channels can be cut – preferably along the spots of grate jointing. Drainage channels are fitted (from the front side) with rubber, shock-absorbing washers designed to protect the body against damages which might occur during the assembly and as the result of linear or thermal expansion.



Drainage bodies are fitted with special bolted mounting brackets.

SLOT MONOLITH DRAINAGE SYSTEMS

CE marking – PN-EN 1433:2005

Declaration of performance

Hygienic Approval No. HHK/B/0438/01/2016

Catalogue No. I - MR

1. Intended use / place of use

SLOT MONOLITH DRAINAGE SYSTEMS

Used in warehouse spaces, roads, streets, car parks, entrances, filling stations, maneuvering yards, car washes and in areas exposed to exceptionally high loads, e.g. airports, transshipment docks, etc.

REINFORCED SLOT MONOLITH DRAINAGE SYSTEMS

Used in areas exposed to exceptionally high loads, where the drainage top may be exposed to devastation and mechanical damage caused by, e.g.: tracked vehicle traffic or other sources of concentrated force capable of breaking the side walls of the drainage system. Uses: warehouse areas, maneuvering yards, airports, industrial plants, quays.

DRAINAGE SYSTEMS FOR PEDESTRIAN AND BICYCLE AREAS

Drainage channels fitted with longitudinal slotted trench grates are used for stormwater drainage in areas, where users must be ensured safety, by providing narrower slots, being less than 3 cm wide. These can include: cycle paths, pavements, car parks, underground garages, pedestrian zones, etc.

AERATION AND DEWATERING DRAINAGE

Slotted channels with perforated slat are installed for the purpose of biological disposal of biodegradable waste in composting plants. The channels are fitted with a system of nozzles, which allows obtaining consistent and adequate aeration of waste heaps. They also act as the reactor drain.

KERB DRAINAGE

Used in such areas as: roads, streets, roundabouts, car parks, maneuvering areas and in other places where you want to install linear kerb drainage systems.

KERB AND TUNNEL DRAINAGE

The tunnel drainage system is used for water drainage and, first of all, for quick removal of combustible substances from tunnel's road surface, which pose a risk of fire or explosion following a traffic collision. The advantage of this type of drainage is that it is made from reinforced concrete, being a non-combustible material in contrast to such materials as resins (polymer concrete), PVC, PE or other plastics.

2. Material

Polymer-cement concrete reinforced with alkali resistant fiberglass (class C60/75), reinforcing steel, PVC, anti-slip sheet*.

3. Diameters

100, 150, 250 i 300 mm.

4. Strength class

D400 kN - F900 kN.

5. Technological scope

- units without internal slope,
- possibility of angular connection of components with the use of multifunctional gullies,
- water drainage with multifunctional gullies,
- inspection with multifunctional gullies,
- gullies with contamination traps,
- end plugs.

6. Advantages of slot monolith drainage systems:

- very high load rating up to F900 kN,
- type I reinforced concrete drainage systems not requiring side concreting,
- drain bodies made from polymer-cement concrete of strength class C60/75,
- the application of alkali resistant fiberglass in concrete improves channel's flexure and impact strength,
- concrete resistance to long-term frost exposure and defrosting salts (" +R"), according to PN-EN 1433,
- concrete chemical resistance, including oil derivatives, according to PN-EN 858-1:2005,
- stability and no grate wrench-out effect when turning the wheel,
- drain channel interior made of PVC, allowing for higher chemical resistance and improved hydraulic properties due to its smooth surface,
- drainage units connected with reducers with rubber gaskets not requiring additional sealing,
- holes for water drainage from bodies are fitted with PVC reducers with gaskets,

* possibility to use anti-slip riffled sheet metal, anchored to the channel surface, the longitudinal slotted grate and the perforated slat.

IMPLEMENTATIONS



Underground garages

AS-A-S100



Waste Treatment Plant

Katowice

AS-S100 N-O - 4020 lm



Bliska Wola district

Warsaw

AS-S100



Racetrack

Kamień Śląski

AS-IIS250 - 1700lm



Bobrowiecka Street

Warszaw

AS-S150



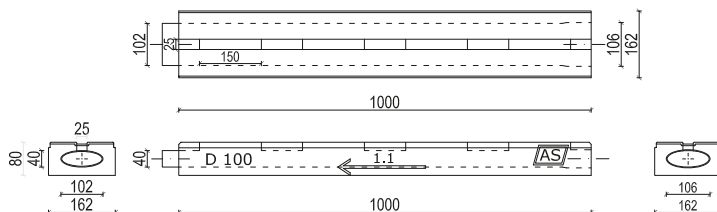
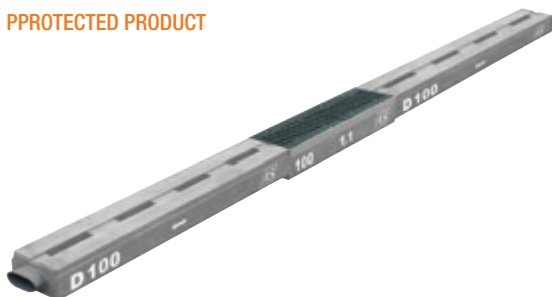
LM Logistyk

Błonie

AS-IIS250 i AS-ST300

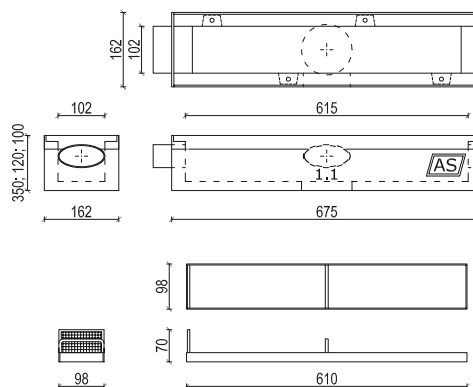
ITEM I
CHANNELS WITH INTERNAL WIDTH OF 100mm

AS-A-S100

PROTECTED PRODUCT


I.I.	Item number	CHANNELS AS-A-S100	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /m]	Weight [kg]	Strength class
I.I.1.	1.1	without slope	162	80	1000	32	150	23.0	B 125 - D 400
I.I.2.		blind cover plate	-	-	-	-	-	-	

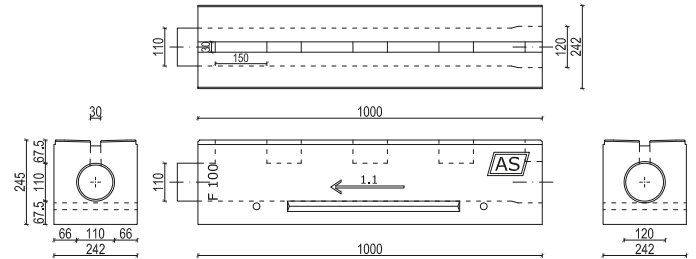
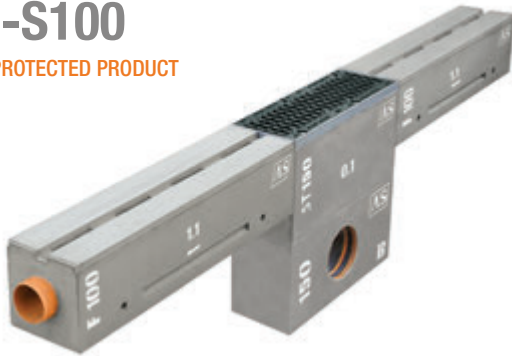
I.II.	Item number	MULTIFUNCTIONAL GULLY AS-ST5100	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
I.II.1.	1.1	inspection unit with bottom	162	350	665	48.0
I.II.2.	1.2	inspection unit with bottom	162	120	665	18.0
I.II.3.	1.3	inspection unit with bottom	162	100	665	16.0
I.II.4.	1.4	inspection unit with bottom	162	80	675	14.0
I.II.5.	0.1	gully without bottom	162	350	665	40.0
I.II.6.	0.2	gully without bottom	162	120	665	14.0
I.II.7.	0.3	gully without bottom	162	100	665	12.0
I.II.8.	0.4	gully without bottom	162	80	675	10.0
I.II.9.	-	cleanout	98	70	610	1.5



You can order AS-A-S100 drainage system with brand solutions to enable welding the channel to the slab reinforcement. This creates the possibility to install drainage channels together with concreting the slab.

ITEM J
CHANNELS WITH INTERNAL WIDTH OF 100mm

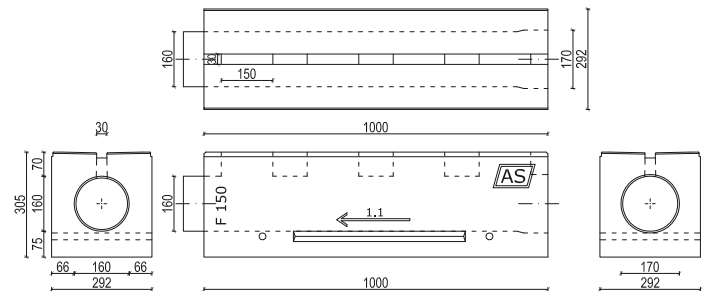
AS-S100

PPROTECTED PRODUCT


J.I.	Item number	CHANNELS AS-S100	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mm]	Weight [kg]	Strength class
J.I.1.	1.1	without slope	242	245	1000	79	180	114.0	D 400 - F 900
J.I.2.	-	PVC plug Ø110	-	-	-	-	-	-	-
J.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
J.II.1.	0.1	upper drain unit	242	350	675	74.4	cl. C 250 - 8.0 kg cl. D 400 - 9.4 kg		
J.II.2.	1.1	inspection unit with bottom	242	350	675	77.2	cl.E 600 - 10.2 kg cl.F 900 - 12.6 kg		
B.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
B.III.1-3.	A	pass-through	242	320	675	53.7			
B.III.4-6.	B	with bottom	242	330	675	66.4			
B.III.7.	-	contamination trap	130	250	430	3.5			

ITEM K
CHANNELS WITH INTERNAL WIDTH OF 150mm

AS-S150

PPROTECTED PRODUCT


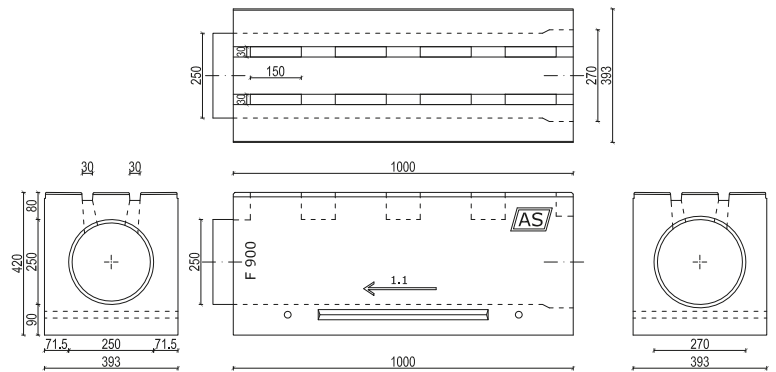
K.I.	Item number	CHANNELS AS-S150	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mm]	Weight [kg]	Strength class
K.I.1.	1.1	without slope	292	305	1000	177	180	158.0	D 400 - F 900
K.I.2.	-	PVC plug Ø160	-	-	-	-	-	-	-
K.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
K.II.1.	0.1	upper drain unit	292	350	675	74.4	cl. C 250 - 10.4 kg cl. D 400 - 11.6 kg		
K.II.2.	1.1	inspection unit with bottom	292	350	675	77.2	cl.E 600 - 15.2 kg cl.F 900 - 17.6 kg		
C.IV.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
C.IV.1-3.	A	pass-through	292	320	675	61.9			
C.IV.4-6.	B	with bottom	292	330	675	77.6			
C.IV.7.	-	contamination trap	180	250	430	3.8			

ITEM M

CHANNELS WITH INTERNAL WIDTH OF 250mm

AS-IIS250

PPROTECTED PRODUCT



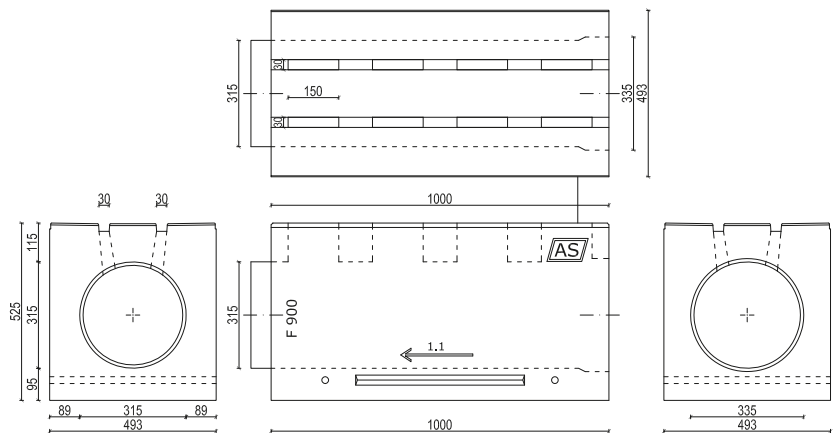
M.I.	Item number	CHANNELS AS-IIS250	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
M.I.1.	1.1	without slope	393	420	1000	415	360	280.0	D 400 - F 900
M.I.2.	-	PVC plug Ø250	-	-	-	-	-	-	-
M.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
M.II.1.	0.1	upper drain unit	393	420	675	142.0	cl.C 250 - 18.4 kg cl.D 400 - 22.6 kg		
M.II.2.	1.1	inspection unit with bottom	393	430	675	167.0	cl.E 600 - 28.8 kg cl.F 900 - 39.9 kg		
M.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
M.III.1-3.	A	pass-through	393	480	675	206.0			
M.III. 4-6.	B	with bottom	393	690	675	246.0			
M.III.7.	-	contamination trap	230	350	430	5.0			

ITEM N

CHANNELS WITH INTERNAL WIDTH OF 300mm

AS-IIS300

PPROTECTED PRODUCT

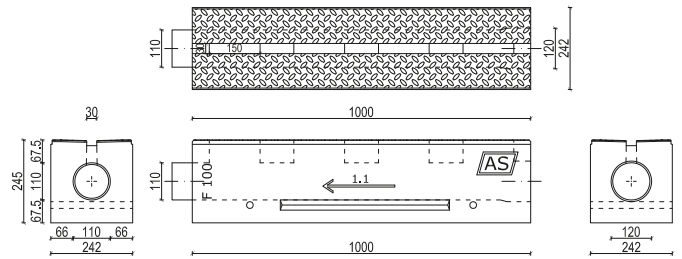


N.I.	Item number	CHANNELS AS-IIS300	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
N.I.1.	1.1	without slope	493	525	1000	706	360	431.0	D 400 - F 900
N.I.2.	-	PVC plug Ø315	-	-	-	-	-	-	-
N.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
N.II.1.	0.1	upper drain unit	493	515	675	160.0	cl.D 400 - 28.2 kg		
N.II.2.	1.1	inspection unit with bottom	493	525	675	186.0	cl.F 900 - 49.8 kg		
N.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
N.II.1-3.	A	pass-through	493	480	675	246.0			
N.II. 4-6.	B	with bottom	493	690	675	286.0			
N.II.7.	-	contamination trap	280	350	430	8.0			

ITEM JR
CHANNELS WITH INTERNAL WIDTH OF 100mm

AS-S100R

PROTECTED PRODUCT

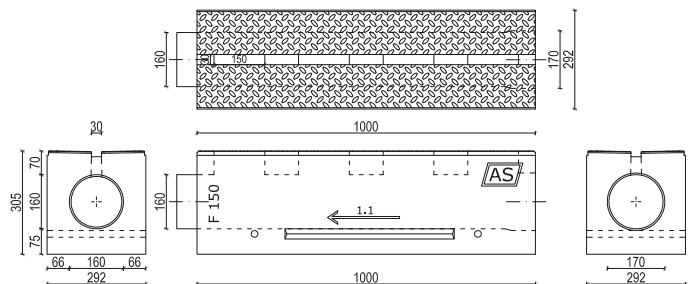


JR.I.	Item number	CHANNELS AS-S100R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
JR.I.1.	1.1	without slope	242	245	1000	79	180	114.0	D 400 - F 900
JR.I.2.	-	PVC plug Ø110	-	-	-	-	-	-	-
JI.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
JI.II.1.	0.1	upper drain unit	242	350	675	74.4	cl. C 250 -8.0 kg cl. D 400 -9.4 kg		
JI.II.2.	1.1	inspection unit with bottom	242	350	675	77.2	cl. E 600 - 10.2 kg cl. F 900 - 12.6 kg		
B.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
B.III.1-3.	A	pass-through	242	320	675	53.7			
B.III.4-6.	B	with bottom	242	330	675	66.4			
B.III.7.	-	contamination trap	130	250	430	3.5			

ITEM KR
CHANNELS WITH INTERNAL WIDTH OF 150mm

AS-S150R

PROTECTED PRODUCT

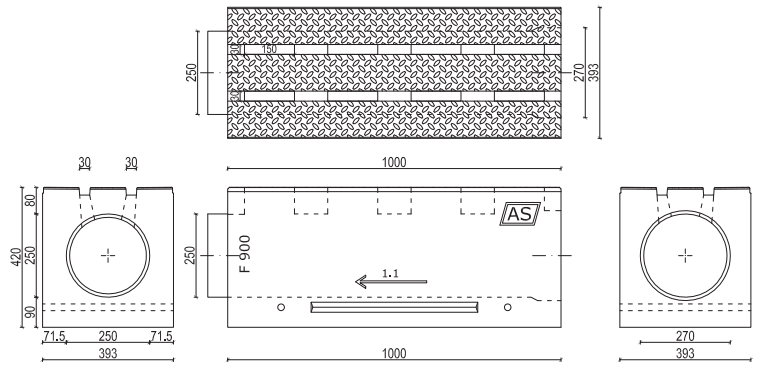


KR.I.	Item number	CHANNELS AS-S150R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
KR.I.1.	1.1	without slope	292	305	1000	177	180	158.0	D 400 - F 900
KR.I.2.	-	PVC plug Ø160	-	-	-	-	-	-	-
K.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
K.II.1.	0.1	upper drain unit	292	350	675	74.4	cl. C 250 -10.6 kg cl. D 400 -11.6 kg		
K.II.2.	1.1	inspection unit with bottom	292	350	675	77.2	cl. E 600 - 15.2 kg cl. F 900 - 17.6 kg		
C.IV.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
C.IV.1-3.	A	pass-through	292	320	675	61.9			
C.IV.4-6.	B	with bottom	292	330	675	77.6			
C.IV.7.	-	contamination trap	180	250	430	3.8			

ITEM MR
CHANNELS WITH INTERNAL WIDTH OF 250mm

AS-IIS250R

PROTECTED PRODUCT

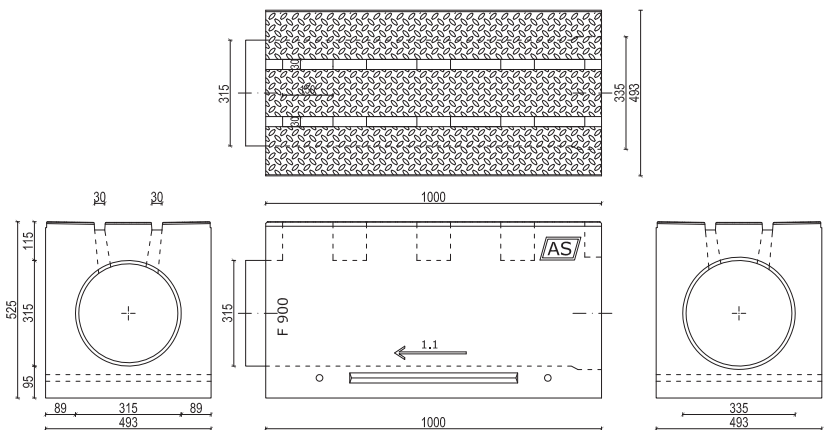


MR.I.	Item number	CHANNELS AS-IIS250R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mb]	Weight [kg]	Strength class
MR.I.1.	1.1	without slope	393	420	1000	415	360	280.0	D 400 - F 900
MR.I.2.	-	PVC plug Ø250	-	-	-	-	-	-	-
M.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
M.II.1.	0.1	upper drain unit	393	420	675	142.0	kl.C 250 - 18.6 kg kl.D 400 - 22.6 kg		
M.II.2.	1.1	inspection unit with bottom	393	430	675	167.0	kl.E 600 - 28.8 kg kl.F 900 - 39.9 kg		
M.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
M.III.1-3.	A	pass-through	393	480	675	206.0			
M.III.4-6.	B	with bottom	393	690	675	246.0			
M.III.7.	-	contamination trap	230	350	430	5.0			

ITEM NR
CHANNELS WITH INTERNAL WIDTH OF 300mm

AS-IIS300R

PROTECTED PRODUCT

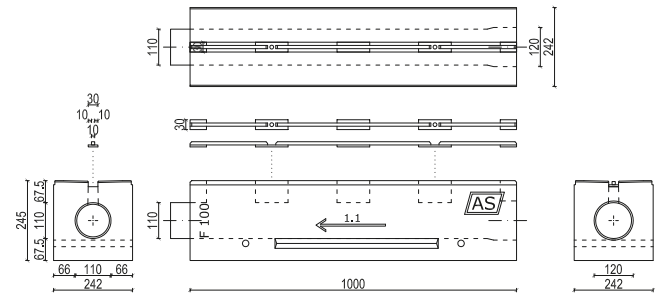


NR.I.	Item number	CHANNELS AS-IIS300R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /mb]	Weight [kg]	Strength class
NR.I.1.	1.1	bez spadku	493	525	1000	706	360	431.0	D 400 - F 900
NR.I.2.	-	korek PVC Ø315	-	-	-	-	-	-	-
N.II.	Item number	MULTIFUNCTIONAL GULLY	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Cast iron grates		
N.II.1.	0.1	upper drain unit	493	515	675	160.0	kl.D 400 - 28.2 kg		
N.II.2.	1.1	inspection unit with bottom	493	525	675	186.0	kl.F 900 - 49.8 kg		
N.III.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]			
N.III.1-3.	A	pass-through	493	480	675	246.0			
N.III.4-6.	B	with bottom	493	690	675	286.0			
N.III.7.	-	contamination trap	280	350	430	7.8			

ITEM JP-R

CHANNELS WITH INTERNAL WIDTH OF 100mm

AS-S100 P-R

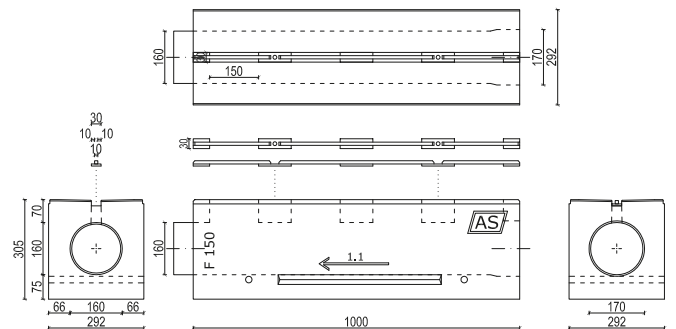


JP-R.I.	Item number	CHANNELS AS-S100 P-R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
JP-R.1.	1.1	without slope	242	245	1000	79	180	114.0	D 400 - F 900
JP-R.2.	-	longitudinal slotted grate	10	16	1000	-	-	-	
JP-R.3.	-	PVC plug Ø110	-	-	-	-	-	-	

ITEM KP-R

CHANNELS WITH INTERNAL WIDTH OF 150mm

AS-S150 P-R

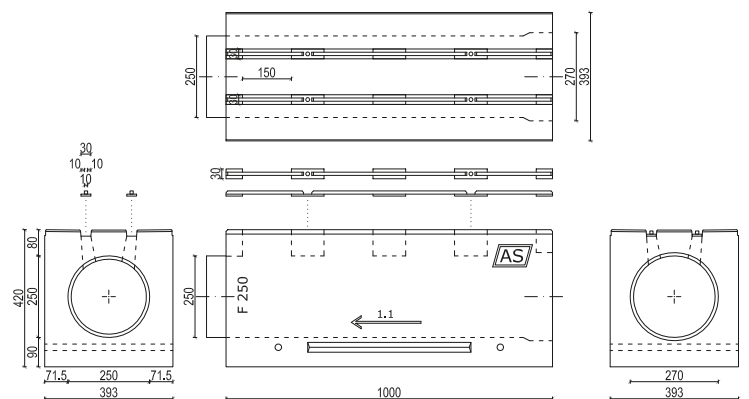


KP-R.I.	Item number	CHANNELS AS-S150 P-R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
KP-R.1.	1.1	without slope	292	305	1000	177	180	158.0	D 400 - F 900
KP-R.2.	-	longitudinal slotted grate	10	16	1000	-	-	-	
KP-R.3.	-	PVC plug Ø160	-	-	-	-	-	-	

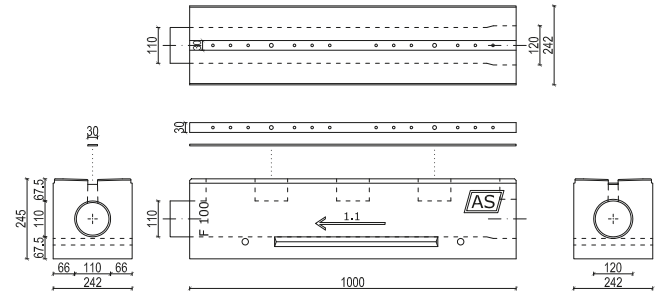
ITEM MP-R

CHANNELS WITH INTERNAL WIDTH OF 250mm

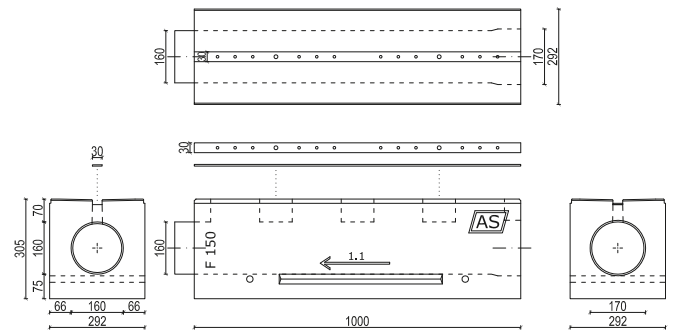
AS-IIS250 P-R



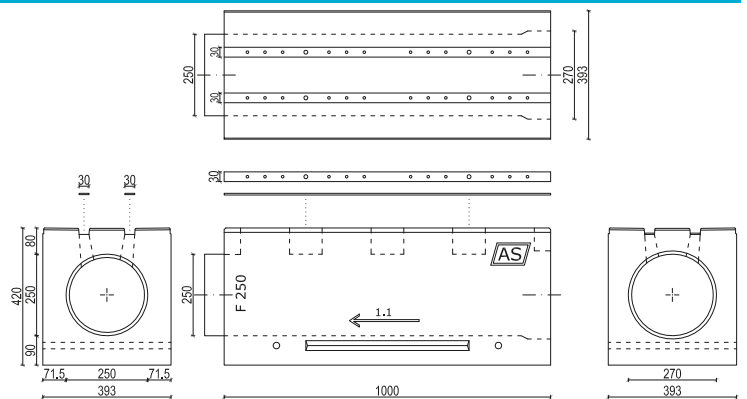
MP-R.I.	Item number	CHANNELS AS-IIS250 P-R	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
MP-R.1.	1.1	without slope	393	420	1000	415	360	280.0	D 400 - F 900
MP-R.2.	-	longitudinal slotted grate	10	4	1000	-	-	-	
MP-R.3.	-	PVC plug Ø250	-	-	-	-	-	-	

ITEM JN-O
CHANNELS WITH INTERNAL WIDTH OF 100mm
AS-S100 N-O


JN-O.I.	Item number	CHANNELS AS-S100 N-O	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
JN-O.I.1.	1.1	without slope	242	245	1000	79	180	114.0	D 400 - F 900
JN-O.I.2.	-	perforated slat	30	4	1000	-	-	-	-
JN-O.I.3.	-	PVC plug Ø110	-	-	-	-	-	-	-

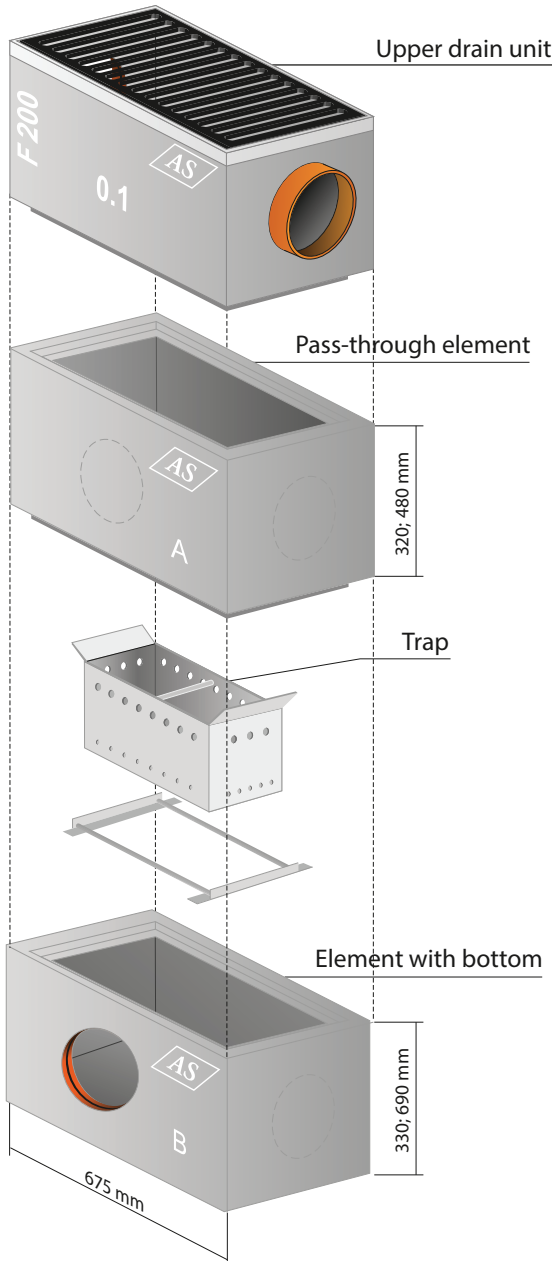
ITEM KN-O
CHANNELS WITH INTERNAL WIDTH OF 150mm
AS-S150 N-O


KN-O.I.	Item number	CHANNELS AS-S150 N-O	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
KN-O.I.1.	1.1	without slope	292	305	1000	177	180	158.0	D 400 - F 900
KN-O.I.2.	-	perforated slat	30	4	1000	-	-	-	-
KN-O.I.3.	-	PVC plug Ø160	-	-	-	-	-	-	-

ITEM MN-O
CHANNELS WITH INTERNAL WIDTH OF 250mm
AS-IIS250 N-O


MN-O.I.	Item number	CHANNELS AS-IIS250 N-O	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm ²]	Inlet surface area [cm ² /rm]	Weight [kg]	Strength class
MN-O.I.1.	1.1	without slope	393	420	1000	415	360	280.0	D 400 - F 900
MN-O.I.2.	-	perforated slat	30	4	1000	-	-	-	-
MN-O.I.3.	-	PVC plug Ø250	-	-	-	-	-	-	-

WATER DRAINAGE FROM AS LINEAR DRAINAGE RUNS



Direct drainage – without discharge drains

- front drainage with the use of a discharge port outgoing directly from the drain body. (Fig. 5)

Outlet holes with the diameters of Ø110, Ø160, Ø250, Ø315.

Using outlet gullies or sump/outlet gullies.

A gully in the AS system consists of:

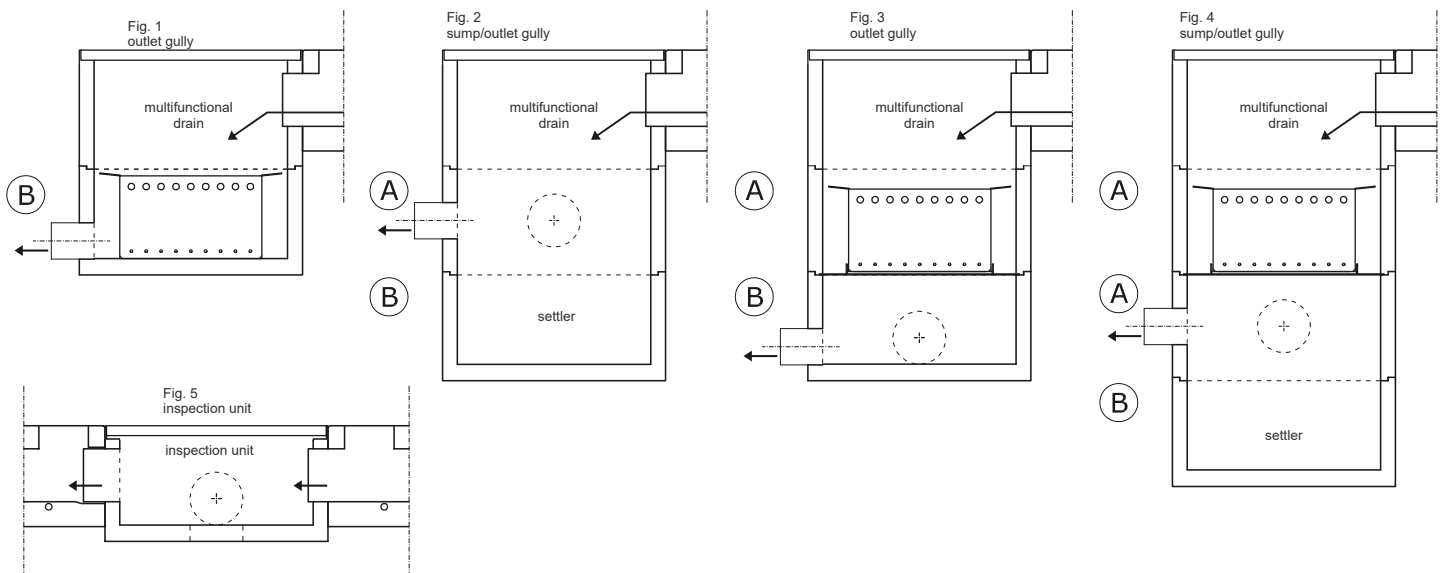
- upper unit with a frame made from hot-dip galvanized hot-rolled steel and a cast iron grate,
- intermediate, pass-through A units,
- B units with bottom (Fig. 1, 2, 3, 4),
- contamination trap.

Drain components are “tongue and groove” connected.

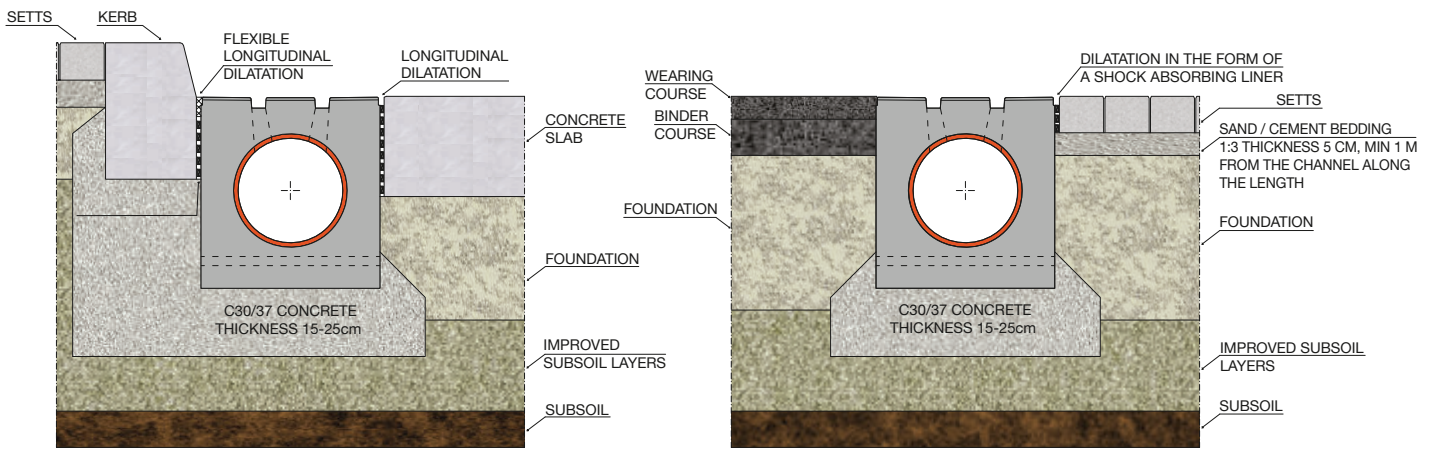
Outlet holes with a reducer and a gasket with the diameters of Ø110, Ø160, Ø200, Ø250, Ø315.

It is recommended to place the settler below frost line.

Outlet gullies and sump/outlet gullies can be fitted with contamination traps. Traps are made of galvanized steel sheet. The walls and the bottom are perforated with holes for water drainage. AS contamination trap does not obstruct the water flow when filled to capacity, however, in that case, it does not capture contaminants.



INSTALLATION AND EMBEDMENT



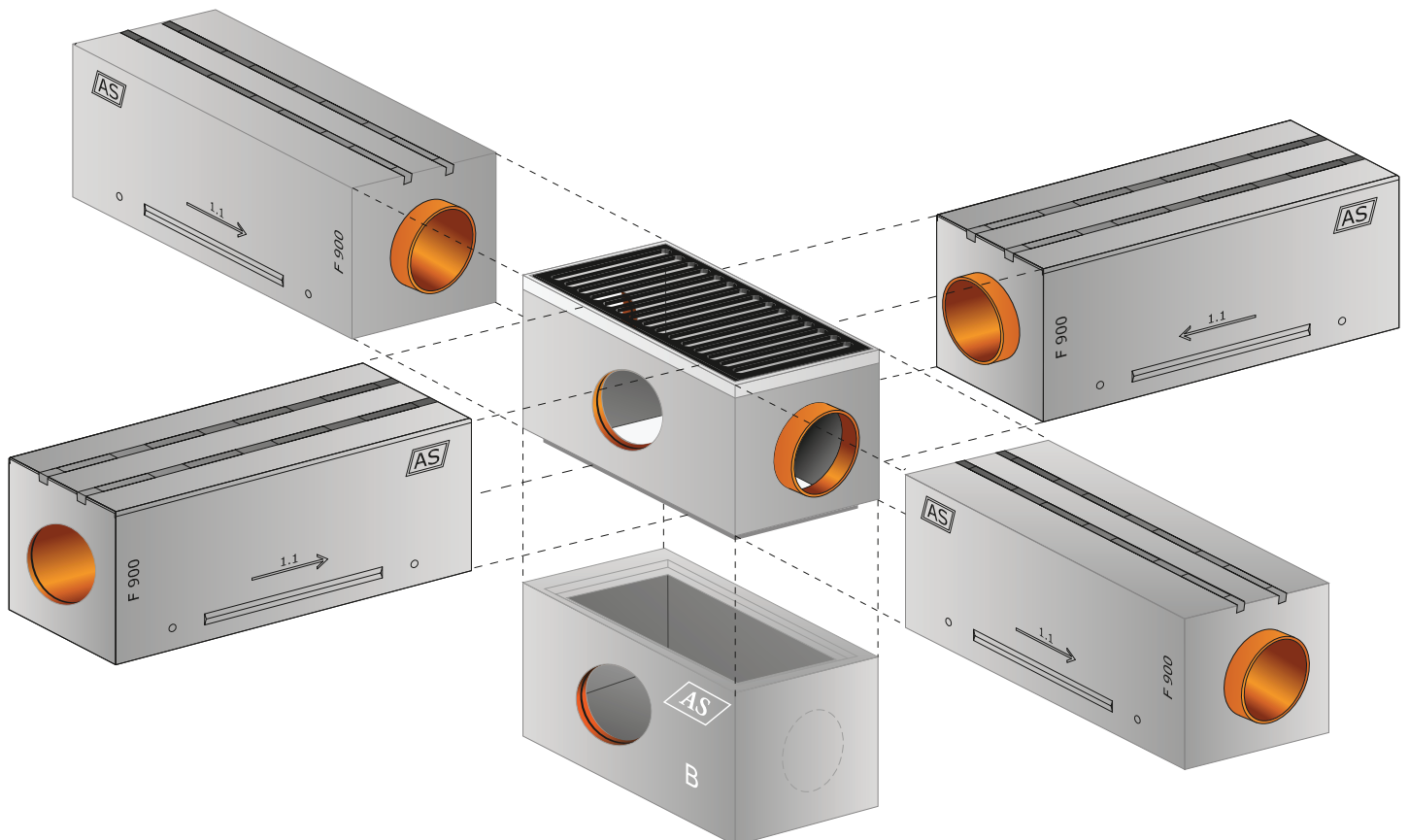
Slot monolith drainage channels do not require side concreting, only providing a concrete strip footing to prevent the channel from subsiding.

Concrete used for making the footing and concreting cannot be of a lower class than the ground and the drained surface.

Concrete used for making the footing and concreting cannot be of a lower class than the ground and the drained surface.

Individual components are joined with reducers with a rubber gasket. The dilatation should be carried out with the use of sealing masses. Drainage channels are fitted (from the front side) with rubber, shock-absorbing washers designed to protect the body against damages which might occur during the assembly and as the result of linear or thermal expansion.

ANGULAR CONNECTION

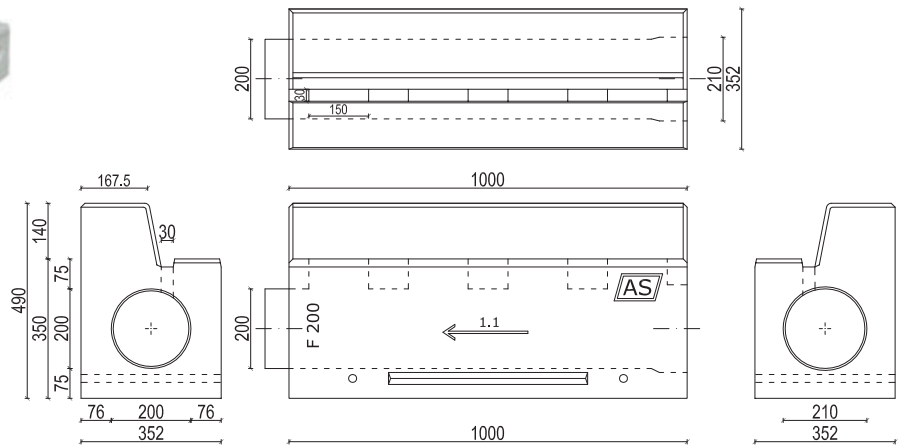


ITEM LK

CHANNELS WITH INTERNAL WIDTH OF 200mm

AS-S200 K

PROTECTED PRODUCT

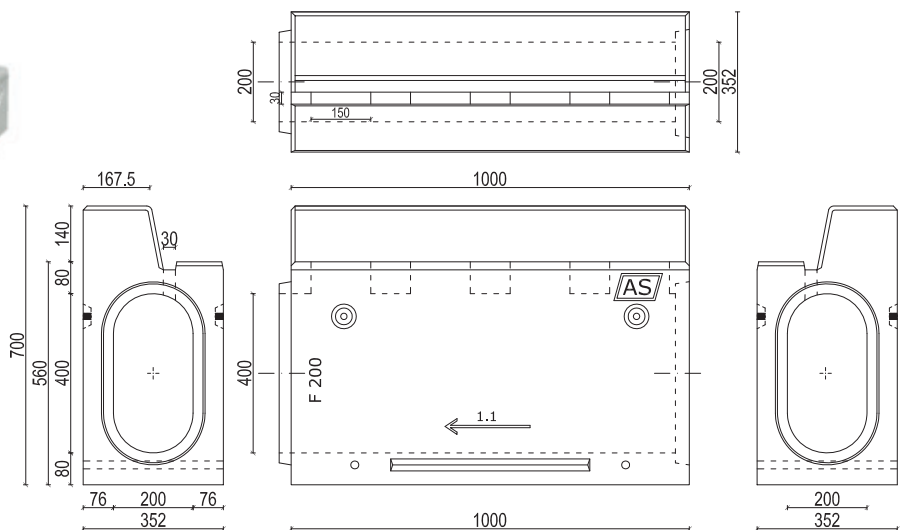


LK.I.	Item number	CHANNELS AS-S200 K	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm]	Inlet surface area [cm /rm]	Weight [kg]	Strength class
LK.I.1.	1.1	without slope	352	490	1000	283	180	290.0	
LK.I.2.	1.1	without slope	352	490	1000	283	180	273.0	
LK.I.3.	1.1	without slope	352	490	1000	283	180	226.0	D 400 - F 900
LK.I.4.	0.1.1	kerb gully.	352	490	500	283	304	103.0	
LK.I.5.	-	PVC plug Ø200	-	-	-	-	-	-	

Catalogue - Kerb and tunnel drainage

ITEM LK-T

CHANNELS WITH INTERNAL WIDTH OF 200mm

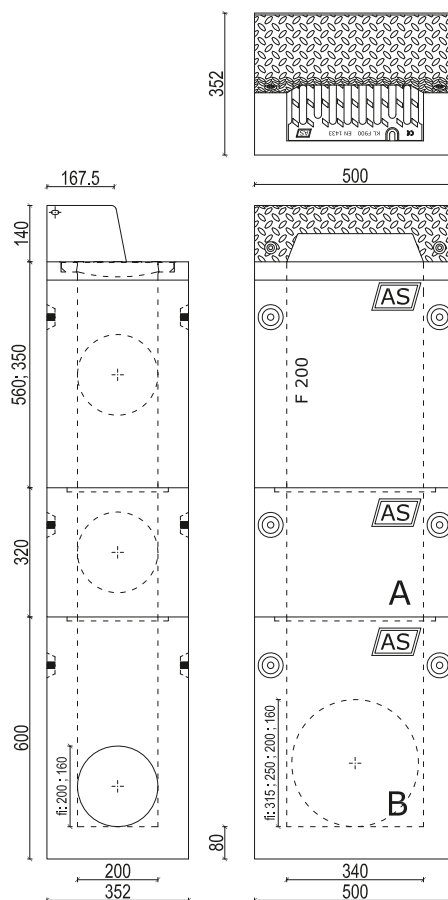
AS-S200 K-T


LK-T.I.	Item number	CHANNELS AS-S200 K	Width [mm]	Height [mm]	Length [mm]	Cross-section [cm]	Inlet surface area [cm /rm]	Weight [kg]	Strength class	
LK-T.I.1.	1.1	without slope	dowe	352	700	1000	714	180	377.0	
LK-T.I.2.	1.1	without slope		352	700	1000	714	180	360.0	
LK-T.I.3.	1.1	without slope		352	560	1000	714	180	313.0	D 400 - F 900
LK-T.I.4.	0.1.1	kerb gully.		352	700	500	714	304	118.0	
LK-T.I.5.	-	blind cover plate No. 1.1		-	-	-	-	-		
LK-T.I.5.	-	cover plate with outlet No. 1.1		-	-	-	-	-		

ITEM HL

KERB INLETS WITH INTERNAL WIDTH OF 200mm

AS-STK



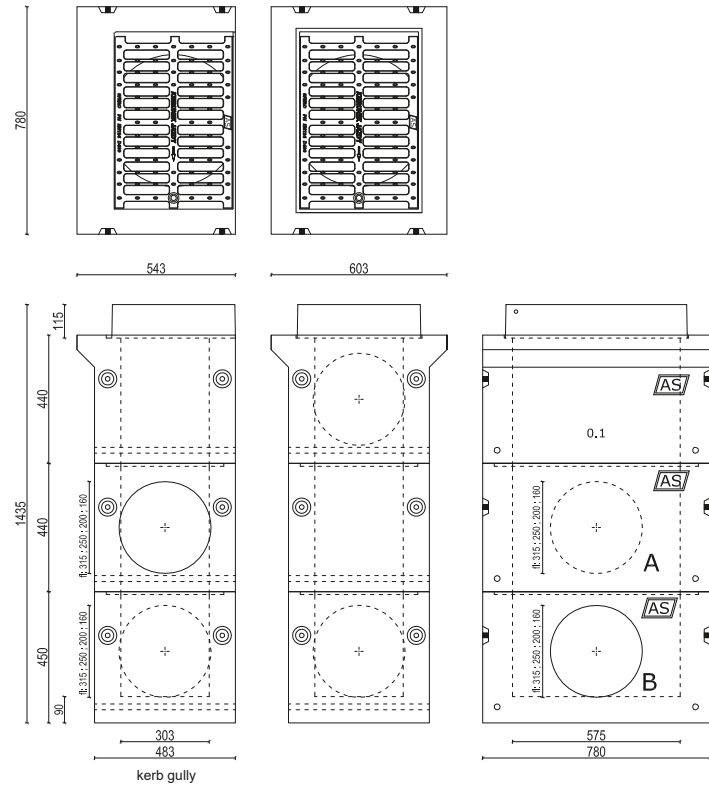
HL.I.	Item number	Drains - kerb gullies	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Strength class
HL.I.1.	1.1	kerb gully with bottom	352	490	500	113.0	C 250 - D 400
HL.I.2.	1.2	kerb gully with bottom	352	720	500	128.0	
HL.I.3.	0.1	kerb gully without bottom	352	480	500	103.0	
HL.I.4.	0.2	kerb gully without bottom	352	710	500	118.0	

HL.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
HL.II.1.	A	pass-through without outlet	352	320	500	87.0
HL.II.2.	A	pass-through with side outlet	352	320	500	81.0
HL.II.3.	A	pass-through with front outlet	352	320	500	80.0
HL.II.4.	B	with bottom; without outlet	352	600	500	176.0
HL.II.5.	B	with bottom; with side outlet	352	600	500	170.0
HL.II.6.	B	with bottom; with front outlet	352	600	500	169.0

ITEM HF

DRAINS FOR STREET GULLIES 400/600

AS-STWU Type I



HF.I.	Item number	Drains for street gullies	Width [mm]	Height [mm]	Length [mm]	Weight [kg]	Strength class
HF.I.1.	0.1	upper drain unit	603	440	780	280.0	D 400 - E 600
HF.I.2.	0.1	upper drain unit, kerb type	543	440	780	272.0	

DF.II.	Item number	DRAIN COMPONENTS	Width [mm]	Height [mm]	Length [mm]	Weight [kg]
DF.II.1.	A	pass-through without outlet	483	440	780	264.0
DF.II.2.	A	pass-through with side outlet	483	440	780	255.0
DF.II.3.	A	pass-through with front outlet	483	440	780	255.0
DF.II.4.	B	with bottom; without outlet	483	450	780	285.0
DF.II.5.	B	with bottom; with side outlet	483	450	780	276.0
DF.II.6.	B	with bottom; with front outlet	483	450	780	276.0
DF.II.7.	-	contamination trap	260	350	330	3.5

STREET GULLIES

PN-EN 124:2000

IO-CERT

Declaration of performance

Catalogue No. W

1. Intended use / place of use

Drainage of roads, streets, garages, car parks, filling stations, maneuvering yards, car washes, etc.

2. Material

Ductile iron, stainless steel.

3. Dimensions

- Length 620 mm
- Width 420 mm
- Height 115 mm

4. Grate

tiltable on a stainless pin, secured with a stainless steel bolt.

5. Body flange

flangeless, flange $\frac{3}{4}$, full flange.

6. Advantages of AS street gullies

- gullies made from ductile iron – characterized by much better properties than grey cast iron due to: higher tensile strength, increased impact strength and higher elastic modulus,
- low weight and easy installation of the product due to body and grate made from ductile iron,
- anti-theft protection with a tiltable grate secured with a stainless steel bolt,
- robust mounting eliminates the effect of stab faulting.



IMPLEMENTATIONS**Street gully**

AS-WU 400x600

**Street gully**

AS-WU 400x600

**Street gully**

AS-WU 400x600

**Street gully**

AS-WU 400x600

**Street gully**

AS-WU 400x600

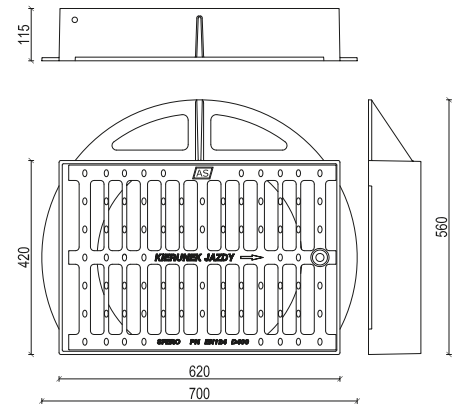
**Street gully**

AS-WU 400x600

ITEM W

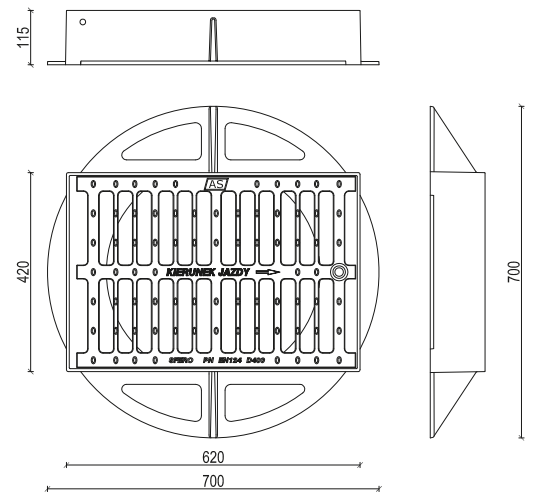
STREET GULLY 420x620mm

AS-WU 400x600 flange 3/4



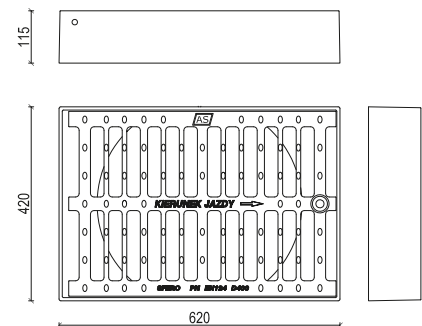
W.I.	AS-WU 400/600	Width [mm]	Length [mm]	Height [mm]	Inlet surface area [cm ²]	Weight [kg]	Strength class
W.I.1.	hinged flange 3/4	420	620	115	1302	47.0	D 400

AS-WU 400x600 full face flange



W.II.	AS-WU 400/600	Width [mm]	Length [mm]	Height [mm]	Inlet surface area [cm ²]	Weight [kg]	Strength class
W.II.1.	full face flange, hinged	420	620	115	1302	49.0	D 400

AS-WU 400x600 flangeless



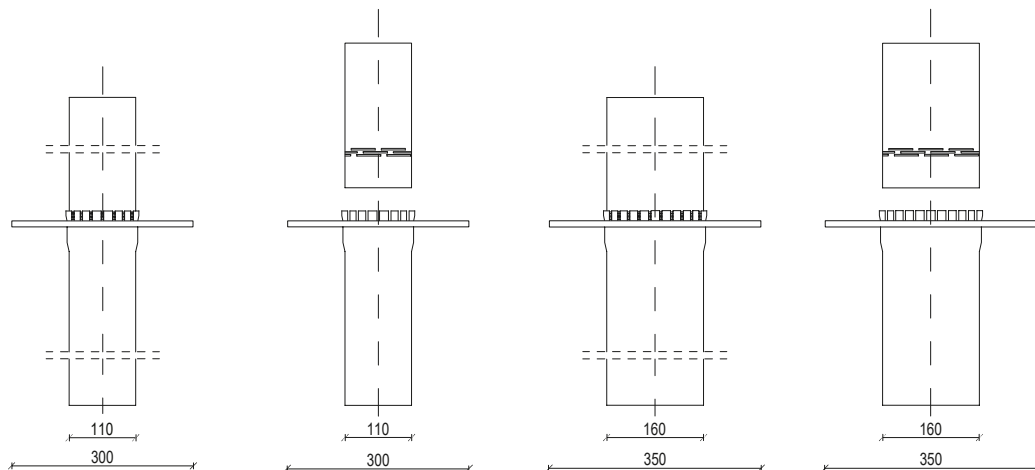
W.III.	AS-WU 400/600	Width [mm]	Length [mm]	Height [mm]	Inlet surface area [cm ²]	Weight [kg]	Strength class
W.III.1.	flangeless, hinged	420	620	115	1302	45.0	D 400

ITEM Z

LEAK-PROOF DUCTS 110 i 160mm

AS type leak-proof ducts through the floor

National Declaration of Conformity
Catalogue No. Z



Z.I.	AS type leak-proof duct through the floor	Internal diameter [mm]	Ring diameter [mm]	Height [mm]	Weight [kg]
Z.I.1.	Leak-proof duct Ø110	100	300	1000*	2.5
Z.I.2.	Leak-proof duct Ø160	150	350	1000*	3.0

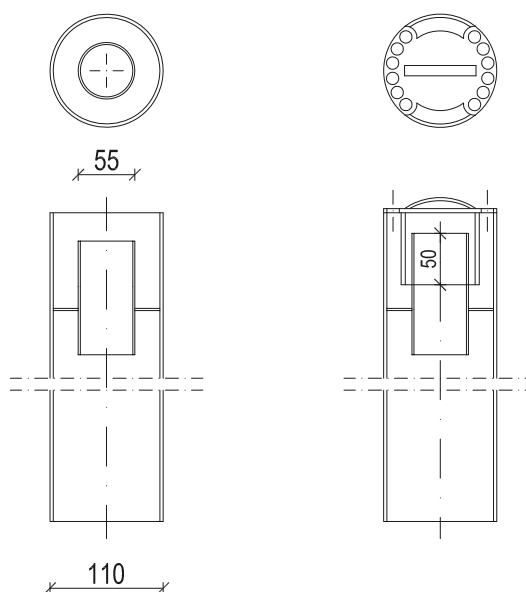
* Leak-proof duct length adjustable at assembly

ITEM Z

SEWER TRAP FI 55mm

AS type sewer trap

National Declaration of Conformity
Catalogue No. Z



Z.II.	AS type sewer trap	Internal diameter [mm]	Ring diameter [mm]	Height [mm]	Weight [kg]
Z.II.1.	AS type sewer trap Ø110	50	100	1000*	2.5

* Sewer trap length adjustable at assembly

Major facilities fitted with AS drainage systems

- Motorway A2** - Buk k. Poznania
- Motorway A2** - Sołeczno
- Motorway A2** - Łądek
- Expressway S8** - Zawada
- Expressway S1** - Skoczów - Cieszyn
- Expressway S69, Section C2** - Szare - Laliki
- Main Road No. 2** - Zakręt - Mińsk Mazowiecki
- Main Road No. 4** - Machowa - Łańcut
- Main Road No. 12** - Radom - Mniszek
- Main Road No. 79** - Ożarów
- Main Road in** - Czarlinie, Kisielanach, Zabijak-Podwarpie
- Main Road No. 10** - Dzierżaznia
- Main Road No. 79** - Section Zwoleń - Ciepiałów
- Main Road** - Stopnica - Oleśnica - Połaniec
- Regional Road** - Strawczyn, Strawczynek, (woj. świętokrzyskie)
- Local Road** - Grąbków, Kowala Pańska
- Local Road** - Żłobnica
- Local Road No. 00284T** - Micigózd - Julianów
- Military Airport** - Dęblin
- Airfield** - Wrocław
- Airport** - Radom
- Puławska Financial Center** - Warsaw
- City Stadium** - Białystok
- Polish State Railway** - Kępno
- Central Mining Institute** - Katowice
- Municipal Landfill Site - Barycz** - Cracow
- Warsaw Wschodnia Railway Station** - Warsaw
- "Orlik" sports fields** - Blachownia, Dąbrowa Zielona, Grójec
- Marynarska Business Park** - Warsaw
- Wiśniowy Business Park** - Warsaw
- Diamentowy Business Park** - Raszyn, Łódź
- Office Complex "Adgar Plaza"** - Warsaw
- Poland Business Park V** - etapstage I and II, Piaseczno
- GTC GALILEO** - Cracow
- ZEPTER Business Centre** - Warsaw
- CENTRUM JASNA** - Warszawa
- WARSAW TRADE CENTER** - Warsaw
- DAEWOO** - Warsaw - the highest skyscraper in Poland
- BUDIMEX-DROMEX Headquarters** - Warsaw
- Canal Plus** - Warsaw
- Carlsberg-Polska** - Sierpc
- MICHELIN** - Olsztyn
- CITIBANK** - Plac Teatralny - Warsaw
- Warsaw University of Technology, the Faculty of Civil Engineering** - Warsaw
- Kielce University of Technology** - Kielce
- University of Life Sciences** - Warsaw
- Office buildings PP Airports** - Warsaw-Okęcie
- Northern Port in Gdańsk** - Gdańsk
- Military Port in Gdynia** - Gdynia; Oksywie
- Waste Water Treatment Plant Siedlce** - Rzeszów, Opole, Świdnica, Łomianki, Grójec
- Canadian and French embassies** - Warsaw
- Ministry of Treasury** - Warsaw
- Residence of the President of Poland** - Ciechocinek
- National Security Building** - Warsaw
- Belchatów Power Plant** - Rogowice
- Drainage of the main square** - Warka
- Ujazdowski Park** - Warsaw
- Municipal Zoo** - Warsaw
- Łazienki Park** - Warsaw
- National Library** - Warsaw
- National Museum** - Kielce
- "STEGNY" Skatin-Rink** - Warsaw
- Hotels: AIRPORT, GROMADA, IBIS, HILTON** - Warsaw
- IKEA warehouses** - Moscow
- NIKE warehouse buildings** - Dąbrowa Górnicza
- RABEN LOGISTIC warehouse buildings** - Wrocław
- Shopping and recreation centers** in Warsaw: KING-CROSS, SADYBA BEST MALL, GALERIA MOKOTÓW, MULTIKINO, ARKADIA, LAND, REDUTA II
- IKEA Shopping Center** - Janki
- GEANT CASINO** - Warsaw, Janki, Toruń, Szczecin, Gdynia
- EDEN Shopping Center** - Lublin
- ECHO Shopping and Recreation Center** - Kielce, Pabianice
- Leader Price** - Piotrków Trybunalski
- LECLERC Hypermarket** - Warsaw, Lublin
- TESCO Hypermarket** - Rybnik
- MAKRO** - Bydgoszcz
- LIDL Distribution Center** - Jankowice, Cracow
- LIDL commercial store** - Gubin, Szczecin, Cieszyn
- MEDIA MARKT** - Chorzów
- CASTORAMA DIY Center** - Szczecin, Łódź
- OBI DIY Center** - Łódź
- Mc Donald's** - Krosno, Warsaw
- Volvo service workshop** - Kutno
- Ford Center** - Warsaw - Włochy
- CITROEN POLSKA Headquarters** - Warsaw
- RENAULT Dealership** - Kutno
- CITROEN Dealership** - Białystok, Wrzosowa
- TOYOTA Dealership** - Piaseczno, Kielce
- MERCEDES Dealership** - Opole
- VOLVO Dealership** - Warsaw, Ursynów
- RENAULT POLAND Dealership** - Warsaw
- Filling stations: PKN ORLEN, PREEM, STATOIL, PETROPROFIT, JET, BP, NESTE, SHELL, ESSO, SAFARI**

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